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# Employment and Social Developments in Europe 2011

## Abstract

[Excerpt] This annual review on Employment and Social Developments in Europe (ESDE) brings together for the first time a comprehensive analysis of challenges facing the EU in the areas of both employment and social policy. Replacing two previous reports - Employment in Europe and the Social Situation Report, the ESDE becomes the European Commission's flagship analytical review on employment and social issues. It builds on the Quarterly Reviews of the EU Employment and Social Situation which the Commission has started producing in 2011 and provides detailed analysis of key structural developments. The 2011 edition focuses on changes in Europe's job structure, recent increases in income inequalities, the varying patterns of poverty and social exclusion, the problem of in-work poverty, challenges and measures in the area of active ageing, and provides an updated analysis of intra-EU labour mobility.

The integrated approach which the Commission has applied in preparation of the review corresponds to the Europe 2020 strategy. This is a long-term development strategy which sees social inclusion, the fight against poverty, greater labour market participation, employment and job quality as essential elements for Europe's prosperity. Europe 2020 emphasizes that the objectives of smart, sustainable, and inclusive growth are mutually reinforcing and sets economic, employment and social policies on an equal footing. This approach also underpins the Europe 2020 Integrated Guidelines and the country-specific recommendations adopted by the European Council in June 2011. Nearly all social challenges have a strong labour market dimension, for example the problem of in-work poverty. At the same time, social policy plays a very important role in improving employment outcomes, e.g. as regards the inclusion of disadvantaged people or active ageing.

## Keywords

European Union, Europe, employment, social policy, poverty, labor market, in-work poverty

## Comments

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# Employment and Social Developments in Europe 2011



Social Europe







# Employment and Social Developments in Europe 2011

**European Commission**

Directorate-General for Employment, Social Affairs and Inclusion

Directorate A

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# Foreword

This annual review on Employment and Social Developments in Europe (ESDE) brings together for the first time a comprehensive analysis of challenges facing the EU in the areas of both employment and social policy. Replacing two previous reports - Employment in Europe and the Social Situation Report, the ESDE becomes the European Commission's flagship analytical review on employment and social issues. It builds on the Quarterly Reviews of the EU Employment and Social Situation which the Commission has started producing in 2011 and provides detailed analysis of key structural developments. The 2011 edition focuses on changes in Europe's job structure, recent increases in income inequalities, the varying patterns of poverty and social exclusion, the problem of in-work poverty, challenges and measures in the area of active ageing, and provides an updated analysis of intra-EU labour mobility.

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To respond to Europe's economic crisis effectively and restore sustainable growth, it is essential to address the employment and social dimensions of this crisis, as the Commission has emphasized in its Annual Growth Survey for 2012. I am confident that this review of Employment and Social Developments in Europe provides a comprehensive basis and useful tool for such action.



**László Andor**  
*Commissioner for Employment,  
Social Affairs and Inclusion*



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# Executive summary

In 2010 the European Union adopted the Europe 2020 strategy consisting of three mutually reinforcing objectives – smart, sustainable, and inclusive growth. Compared with the Lisbon strategy for growth and jobs, the Europe 2020 objective of inclusive growth gives a new prominence to social issues complementing a strong focus on employment. It stresses the need for social inclusion and fighting poverty, as well as increasing labour market participation with more and better jobs as essential elements of Europe's socioeconomic model.

The course of events in recent years, with a financial and economic crisis which turned into a sovereign debt crisis and extensive recovery packages, followed by a wave of austerity measures by most EU governments, has clearly highlighted the need for a more integrated approach towards economic strategy, as well as towards employment and social policy making. The combined role of social protection systems as automatic stabilisers and the other labour market and social measures adopted by most Member States during the downturn have been instrumental in sustaining jobs and disposable household incomes. Moreover, while modern employment policies are a key prerequisite for a successful recovery and growth strategy, they must promote the participation of all and be integrated with equally well-designed social policies in order to ensure not only fairer sharing of the benefits of growth but also, when the need arises, the pains of recession or austerity. The social consequences of the economic crisis and the reduced fiscal space make efficient, well-targeted policies in the Member States even more crucial.

Developments since the outbreak of the financial crisis in 2008 have shown a need for timelier reporting on employment and social trends to inform the policy-making process. The European Commission has therefore launched quarterly reviews of the EU Employment and Social Situation, providing a regular detailed overview and analysis of the most recently available data both at EU level and in the Member States. The annual ESDE review will mainly focus on issues of a more structural nature which EU employment and social policies have to address.

Employment growth has followed the timid economic recovery of the past two years with an important lag and resulted in a gain of only 1.5 million jobs by mid-2011; much less than the 6 million jobs lost during the recession. In addition, employment recovery has been very uneven across

***A new integrated approach  
from the European Commission  
to economic, employment  
and social policies...***

***...whose need has been borne out  
by the protracted crisis...***

***...is reflected in the new  
Employment and Social  
Developments in Europe review***

***Against a bleaker economic and  
social context...***

***...specific issues are analysed in the 2011 ESDE review***

***Intensified wage polarisation has implications for skills policies...***

***...and calls for new approaches to income and social inequalities***

Member States. Unemployment rates range from 4.1% in Austria to 22.8% in Spain. In the EU as a whole the unemployment rate has been around 9.5% for more than a year with 23.3 million people looking for work, while the share of long term unemployed is above 40% and rising. Youth unemployment is particularly alarming. It has risen to more than 5 million (20% of young people on the labour market) and is above 25% in 10 Member States, with a high of 48% in Spain. The prospects for sustained and job-rich economic recovery have again become more distant with a slowdown in world trade and the protracted Euro crisis. Regardless of the outlook, the negative social consequences of the great recession are already acutely felt by large numbers of EU citizens. In particular, phenomena such as rising long-term unemployment, declining incomes, and signs of rising poverty and material deprivation in many Member States are significantly increasing the risks of long-term exclusion from the labour market and society.

The review focuses on a number of key themes relevant to EU priorities in the field of employment and social policies as well as to broader economic policy. Despite the limited availability of timely data in some of the areas covered, it brings a number of relevant findings which we are confident about. It looks at sectoral employment changes during the crisis years and their role in wage polarisation. It examines recent trends in income inequality as well as patterns of poverty and exclusion in the EU. It analyses the phenomenon of in-work poverty from an individual and a household perspective. Finally, it revisits the issues of active ageing and incentives for longer working lives, as well as worker mobility within the EU.

A trend towards polarisation of jobs existed in the EU before the crisis, as new jobs became concentrated in relatively high and low pay levels, notably in the service sector, with an apparent predominance of better-paid jobs. The intensity of the 2008 recession and consequent job reallocation has further intensified this polarisation by massively destroying medium-paid jobs in manufacturing and construction. At the same time, educational and skills profiles in the new job structure tend to become more demanding, thus compromising the chances of reemployment and access to well-paid jobs for lower-skilled people who lost their jobs during the recession. This highlights the issues of more adaptable wage-setting mechanisms, changes in unionisation, income security implications of low wages and the need for up- and re-skilling of the workforce at all levels. From an individual perspective, choosing the right sorts of skills to develop is key for successful professional life. From the perspective of the economy, it is crucial to improve skills forecasting, labour market matching, adaptability of enterprises and workers to change, and to develop new sectors with sustainable job-creation potential. Low-skilled jobs will continue to exist but they will require better literacy, numeracy and other basic skills. Availability of more high-skilled jobs will not guarantee that all graduates can find work unless tertiary education foresees and adapts to new needs.

The polarisation of wages is one factor impacting on a broader social problem facing the EU, namely rising inequalities and polarisation of incomes. A better understanding of the underlying causes of inequalities is vital in order to design and implement tax and benefit systems effectively. In the most recent period for which data is available, 2005-2009, some of the most unequal EU countries have shown signs of reducing inequality as their social systems have matured, while some more equal countries, the Nordic countries among them, have seen signs of increasing income inequality. However, despite the positive role which social systems played in the stabilisation of household incomes during the crisis, and especially of those in the lower part of the income distribution scale, the long term

trend in income inequalities remains a generally upward one. As the economic context remains difficult, governments' fiscal space will remain very tight with little prospect of increased levels of social spending. This raises a number of important policy questions. Firstly, there is a need to find ways of mitigating labour market inequalities by raising participation and addressing wage inequalities, including through raising low wages especially where they lag significantly behind productivity developments, and facilitating upward transitions. The review also shows that there is room for raising the quality and efficiency of social spending, better exploiting the role of in-kind benefits in mitigating inequalities or reflecting on taxation of top incomes.

Poverty is one extreme result of rising inequalities and as such rightfully deserves major attention by policy makers. However, due to its multi-dimensional nature, measuring and monitoring of poverty is far from straightforward, which may hinder effective policy interventions. In the framework of the Europe 2020 strategy, the Member States have agreed on a three-pronged approach to monitoring poverty and social exclusion. The agreed target is defined on the basis of three combined indicators which reflect the multiple facets of poverty and exclusion, as well as the diversity of situations and priorities in an enlarged EU, namely income poverty, material deprivation, and exclusion from the labour market. In 2009, 114 million Europeans were at risk of poverty or social exclusion. This represents 23 % of the EU population. To tackle the issue efficiently, it is vital to identify who exactly are the people facing the greatest risk of poverty and social exclusion. The phenomenon is not uniform across the EU. Eastern Europeans are more often facing severe material deprivation while exclusion from the labour market prevails in the Northern and Western Member States.

Lack of strong labour market attachment, youth or old age, particular family circumstances, including those caused by care obligations, as well as some other individual characteristics such as disability or a migrant or minority background are among the key risk factors. Four in ten working-age Europeans at risk of poverty or social exclusion are inactive. Europeans over 65 years of age represent 16 per cent of the overall population but 22 per cent of the population at risk of poverty or social exclusion and the risk further increases in the age group over 75. Lone parents and their children face drastically higher risks of poverty or social exclusion. Being born outside the EU also represents a significant risk factor. These groups are clear targets for focused action.

While having a job remains the best safeguard against poverty and social exclusion, it does not prevent it. Raising employment rates is good but a significant share of adult Europeans at risk of poverty or social exclusion are working: over 8 per cent of people with a job are at risk of poverty and can therefore be qualified as "working poor". In-work poverty is a serious issue for the EU and a prime example of the need for an approach that combines and integrates both social and employment policy solutions.

The risk of in-work poverty is higher for people in temporary or part-time jobs or with low education. However, in-work poverty must also be understood from a household perspective, notably as regards the combined involvement of all adult household members in employment and the household composition, mainly the presence of children. Households working at only half of their potential (e.g. a one-breadwinner couple) face a risk of poverty of 20 %, against 5 % for those who realise their full potential (e.g. two adults working full time). Having children is a further

***114 million Europeans were at risk of poverty or social exclusion in 2009. The types of risk and thus appropriate policy responses vary across the EU...***

***...but the risk factors and thus target groups are rather similar***

***Over 8 per cent of EU population in employment is at risk of poverty...***

***...in particular those living in low and medium work intensity households...***

***...and those in low-wage jobs, so higher (minimum) wages can help...***

aggravating factor for low-work-intensity households; they find themselves at twice as high a risk of poverty compared with similar childless households. When both parents work, the presence of children has little impact on the risk of poverty. The analysis also shows that it is crucial to facilitate full-time participation of lone parents.

***...as will tackling labour market segmentation***

Low wages are an important factor in in-work poverty, especially in countries where decentralised collective bargaining and low collective bargaining coverage lead to high earnings dispersion and low minimum wages. Higher minimum wages are associated with lower levels of in-work poverty, although their effectiveness can in some cases be limited as they cannot be easily targeted, and in particular they do not provide support to the large majority of the in-work poor who fall outside of their scope (e.g. those in self-employment, or casual or part-time jobs).

***The ageing challenge requires active encouragement of firms and workers to ensure longer working lives...***

Working on a temporary contract is another important characteristic associated with in-work poverty. Temporary contracts often carry a wage penalty (on average 14 % lower than for permanent jobs). This is a particular concern in countries where the percentage of involuntary temporary work is high and transition rates toward better paid or permanent contracts are low. The current labour market trends showing that a majority of the jobs created are on temporary contracts point to a risk of an increase in in-work poverty in these countries in the coming years.

Active ageing is another subject of this review. Despite clear successes in raising the employment rate of older workers over the last decade to close to 50 %, achieving the overall employment rate target of 75 % by 2020 depends on sustained progress in this age category. The working population in the EU is projected to age significantly in the coming decades while the age-dependency ratio will increase sharply. In combination with falling fertility rates, living longer will pose a major risk to the sustainability of the European Social Model. In order to address this challenge, older people should be encouraged and assisted to remain active longer, but this requires appropriate policy responses aimed both at both workers and firms in so far as market forces alone are unlikely to generate a desirable outcome in an efficient and equitable way.

***...which must go beyond financial aspects***

The decision whether to retire or remain on the labour market is not only a result of financial considerations. Much deeper pull and push factors are at play. As a result, active ageing policies should not be limited to removing financial disincentives but should include supportive measures specifically targeted at older workers: discouraging early retirement, stimulating learning and training to avoid skills obsolescence, adapting working conditions to the specific characteristics of older people, making work pay, maintaining good health of older workers, and providing care for the elderly. Health and safety at work and accessibility and quality of healthcare in youth and throughout working life is also important for effectively extending working life.

***Despite concerns about the impact of post-enlargement labour mobility within the EU during the economic crisis...***

Post-enlargement mobility of workers is the final focus of this review. Since 2004, intra-EU labour mobility, which is traditionally limited, has increased by around 3.6 million movers coming from the new Member States. This has raised the issue of the impact of enlargement and increased inflows of workers on the economic and social situation in both the receiving and the sending countries. As the transition period for the 2004 accession countries ended on 1 May 2011, stock is taken of the experience of labour mobility from these countries. Moreover, some restrictions are still in place for Bulgarian and Romanian workers and the start of the third phase of the

transitional arrangements justifies devoting special analysis to the extent and impact of the flows from these countries and the role of transitional arrangements. The analysis in this review underpins the Commission's report on the functioning of the transitional arrangements on free movement of workers from Bulgaria and Romania, recently submitted to the Council in accordance with the Accession Treaties.

Generally speaking, the post-accession labour mobility flows have been limited, compared to the total resident population and the arrivals of third-country-nationals (In 2010, EU-12 nationals living in other Member States represented slightly more than 1 % of the total population in EU-27, compared to almost 4 % for the third country nationals). Moreover, the inflows have considerably diminished during the recession, especially in the countries that have been the most affected (such as Ireland or Spain). While recent movers from the newest Member States have contributed to the economies of receiving countries, their labour market integration has been more difficult since the recession, especially in Spain. Nevertheless, for most countries, no significant impact on local unemployment or wages has been found while the risks of brain drain for countries of origin seem limited overall. This does not preclude that post-enlargement mobility may have had some economic costs for the receiving and sending countries especially in times of deficient aggregate demand, and more specific consequences for the most exposed sectors in the countries of origin, such as healthcare. However, restricting free movement of workers cannot be the answer to high unemployment in Europe and may have negative side-effects beyond being a curb on workers' freedom to move.

This new ESDE review represents the first consolidated analytical reflection on the social and employment policy agenda put forward by the Europe 2020 strategy. In this respect, it poses a number of interesting questions which deserve more detailed attention in the near future. For instance, the importance of economic inequalities in society goes beyond income and in order to gain a fuller understanding of the issue, a closer look is also needed at the patterns of consumption and wealth distribution in our societies. Similarly, poverty is not a static phenomenon - people may fall into poverty, but also manage to escape it and providing a more dynamic picture is key to effective policy design.

In the area of employment, understanding the skills requirements of new jobs is critical for improving the employability of the European labour force and identifying mismatches in the labour markets, as well as for lifting the low skilled out of poverty. Low wages are central to in-work poverty and wages, alongside other factors, are at the heart of many of today's discussions about competitiveness and external and internal imbalances. Wage polarisation is examined in this review but many other aspects of wages and employment can and should be analysed, including from the point of view of aggregate demand at EU level. Labour mobility inside the EU is extensively analysed in this report but migration, i.e. mobility from (or to) third countries, may also have significant effects on EU labour markets and could be further investigated.

These and other emerging topics should be analysed in this new review in the coming years against the background of the Europe 2020 strategy and the main employment and social policy challenges in Europe. The focus of the ESDE will continue to be shaped in discussion with key stakeholders.

***...no significant impact on local unemployment or wages has been found for most countries, and the risks of brain drain for sending countries seem limited overall***

***A research agenda for the near future in the social...***

***...and employment fields...***

***...should continue to reflect the Europe 2020 strategy***





# Key features of the current European employment and social situation

DG ECFIN's autumn forecast projects that EU GDP growth will come to a standstill around the turn of the year, narrowly avoiding a recession in the baseline scenario. The projected growth will not be sufficient for labour market improvements. A vital question is how long this slowdown will last and what can be done to try to counteract it. This chapter identifies some of the core aspects of the EU's labour market and social situation underpinning the principal challenges facing policy makers today and in the near future as they strive for inclusive as well as smart and sustainable growth within the Europe 2020 strategy. It does not, however, attempt to take a lengthy look at the longer term trends in EU labour markets as this is regularly done in the EU Employment and Social Situation Quarterly Review<sup>(1)</sup>, the source of the graphs below. The analysis starts with a look at the latest available data and trends and a second section looks at the structural challenges and opportunities.

## 1. THE CURRENT PICTURE AND KEY TRENDS

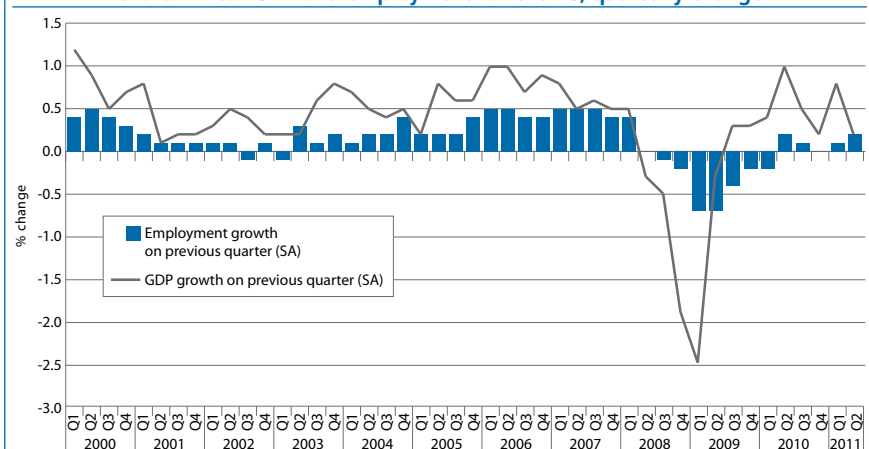
### 1.1. Employment

Employment recovery, at best weak (see below), is threatened by a bleaker macro-economic outlook. EU GDP growth has decelerated from 0.7 % quarter-on-quarter in the first quarter of 2011, to 0.2 % in the second and third quarters. Leading indicators suggest weak growth ahead. The Economic Sentiment Indicator has declined since March 2011 and stands well below its long-term average, as a result of a broad-based

deterioration in sentiment across the sectors. According to DG ECFIN's autumn forecast, growth will be weak in the second half of this year and in 2012. Annual average GDP growth in the EU is forecast at 0.6 % in 2012 and 1.5 % in 2013. Employment growth is expected to grind to a halt in 2012. As a result, unemployment will not fall during 2012 and 2013.

According to the Commission's business surveys, employment expectations in the EU have declined continuously since reaching a peak in March 2011 in industry, services, and retail trade. Employment expectations in construction remain stable at a low level.

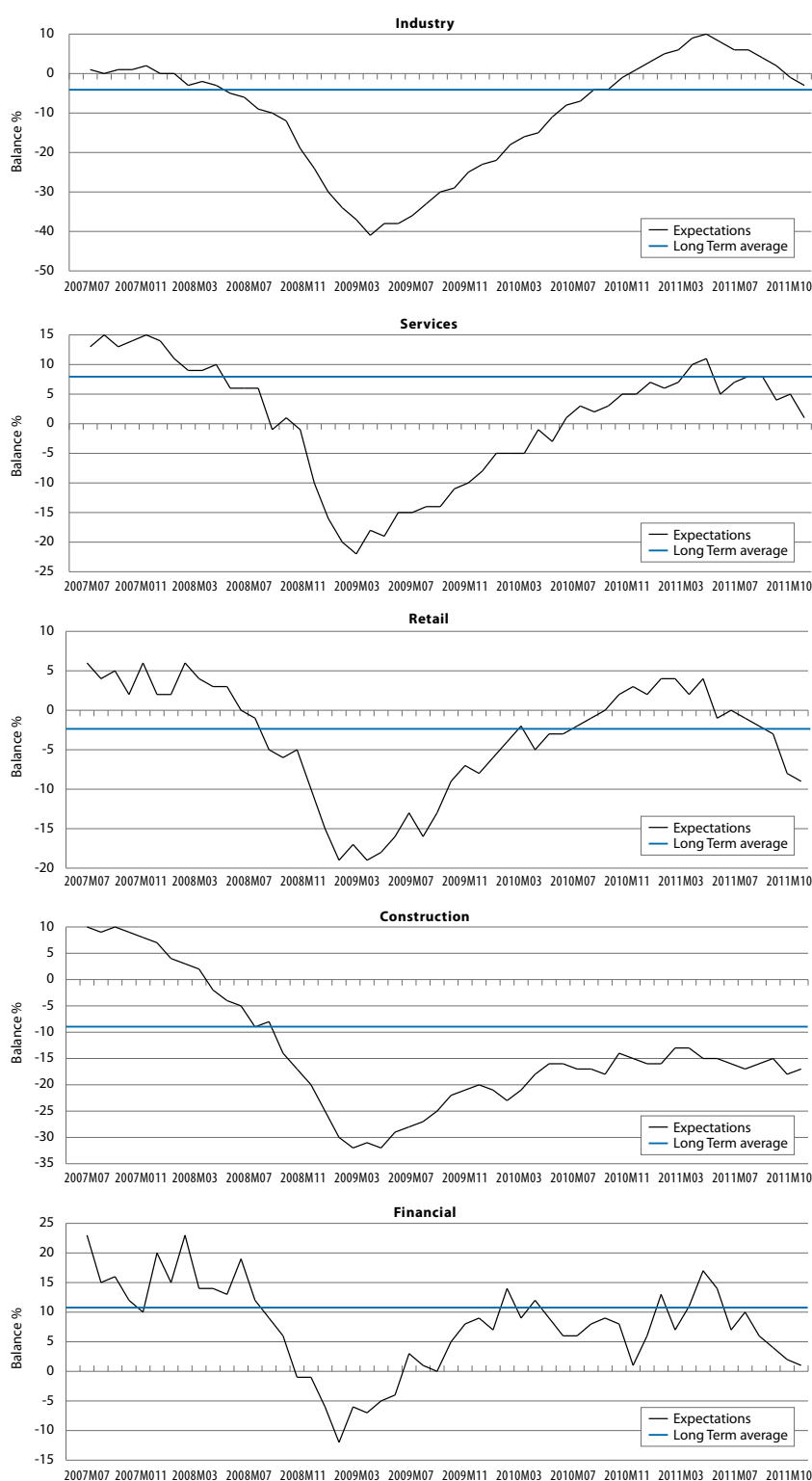
Chart 1: Real GDP and employment for the EU, quarterly change



Source: Eurostat, National Accounts

(1) DG EMPL EU Employment and Social Situation Quarterly Review, September 2011 p. 15-24  
<http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=1080&furtherNews=yes>

**Chart 2: Employment expectations in the EU by economic sector  
(July 2007- October 2011)**



Source: DG ECFIN, Business and Consumer Surveys

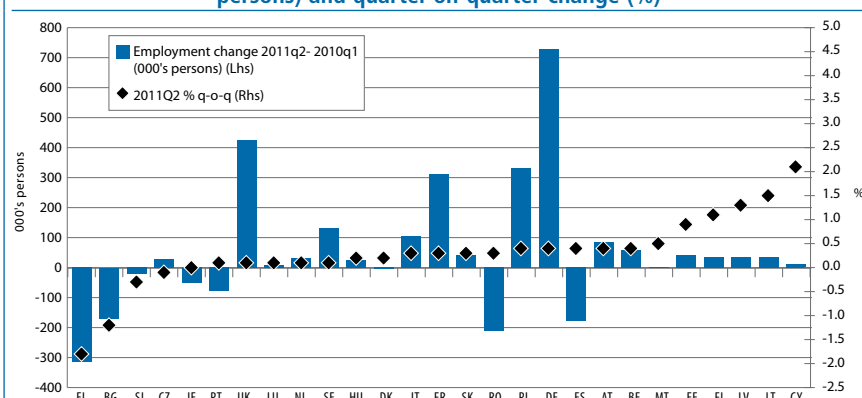
Post crisis, overall employment growth has been slow and hesitant, with a predominance of temporary contracts. The EU saw employment growth return in the fourth quarter of 2010, three quarters after GDP growth restarted. Whereas jobless growth has not been occurring in the EU as a whole, growth was far from job-rich (0.3% y-o-y in the second quarter of 2011). Across Member States, the situation has been very uneven. In the second quarter of this year, employment growth was moderately strong (1% or more y-o-y) in some of the hitherto worst affected Member States – Estonia, Lithuania, and Latvia – as well as in some of the less affected ones<sup>(2)</sup> – Germany, Austria, and Sweden<sup>(3)</sup>. Employment growth was close to zero in Hungary, and slightly negative in Denmark. The y-o-y decline exceeded ¾% in Bulgaria, Spain, Romania, and Slovenia, as well as in the Programme countries Ireland, Greece and Portugal.

## 1.2. Sectoral changes

Looking at where jobs have been added, it is the services sector that has led to an employment recovery, mainly in financial services and in the trade sector. After strong losses, the construction sector is stabilising, but the job destruction in the public sector is expected to intensify. The industrial sector is not yet in growth territory – except for export-led segments as is the case in Germany and Sweden – while the unwinding of labour hoarding should be exhausted by now and business services are strongly positively oriented. This diverse picture is expected to remain broadly the pattern for the next year, although any sustained downturn in growth will clearly have a negative effect

(2) Countries with positive employment growth over the period 2008Q2-2011Q1.

(3) A short analysis of the labour market in a selection of Member States can be found in the different issues of the Quarterly Review of the EU Employment and Social Situation (EE, FR, DE, IE, IT, LV, LT, and UK with September issue; BE, DK, EL, ES, PL, PT, SI, FI, and SE in the June issue; BG, DE, FR, IT, HU, RO, and UK in the March issue).

**Chart 3: Member States' employment in 2011 q2: year-on-year change (1000's of persons) and quarter-on-quarter change (%)**

Source: Eurostat, National Accounts

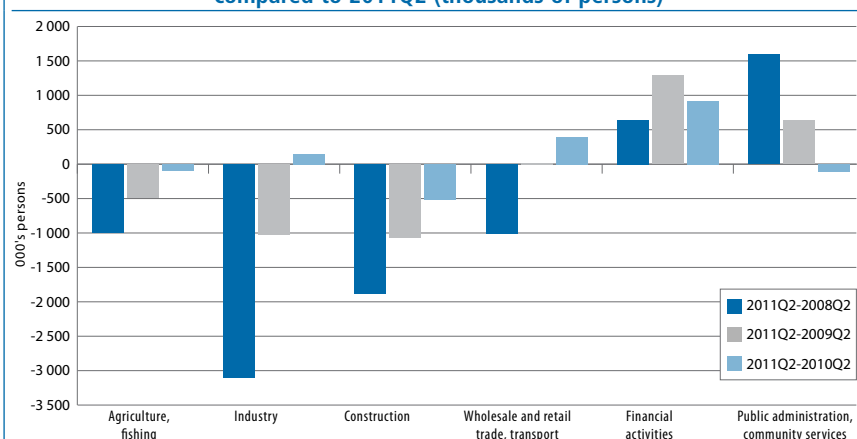
Note: Data seasonally adjusted except for CY, MT, RO and SE

with many environment-improving jobs in non-environmental industries, e.g. eco auditors in steel plants or car workers producing hybrid vehicles.

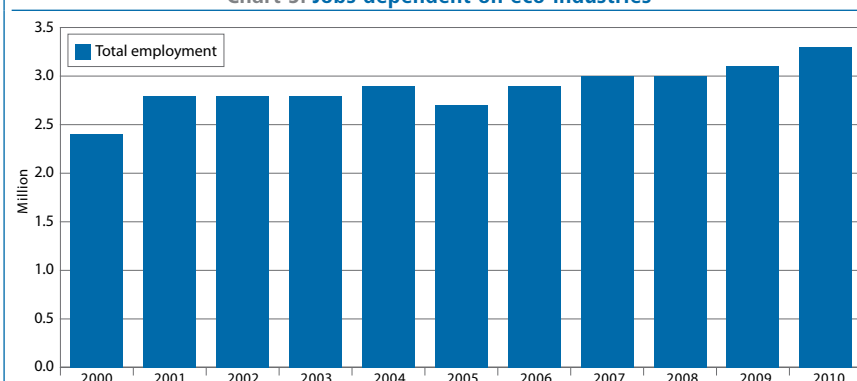
A narrow definition for green jobs is those in eco-industries which produce goods and services to measure, prevent, limit, or correct environmental damage to water, air, and soil, as well as problems related to noise, waste, and ecosystems. This includes technologies, products, and services that reduce environmental risk and minimise pollution and resources. Growth in employment in the eco-industries in 2000-2008 was 3 % (revised down from 7 %)<sup>(4)</sup>.

Jobs growth in the eco-industry has been positive throughout the recession and is forecast to continue to be quite strong. Total numbers employed have grown from 2.4 million in 2000 and 2.9 million in 2006 to 3.0 million in 2008. Employment is forecast to reach around 3.8 million in 2012.

Clearly, though respectable in growth terms, it is not employment in the eco-industries which will power more and better jobs. Nonetheless, the products and services of this sector are enabling productivity gains and innovation in many other sectors and it is these green skills and associated green jobs that can be a major source of demand for new jobs.

**Chart 4: EU employment by economic activity, changes from 1, 2 and 3 years ago compared to 2011Q2 (thousands of persons)**

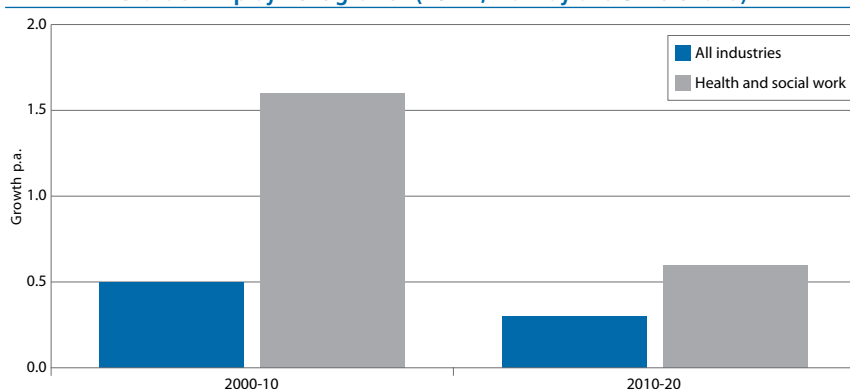
Source: Eurostat, National Accounts

**Chart 5: Jobs dependent on eco-industries**

Source: Ecorys, European Commission, 2011, "The number of jobs dependent on the Environment and Resource Efficiency Improvements".

(4) See forthcoming study by Ecorys "The number of Jobs Dependent on Environmental and Resource Efficiency Improvements"

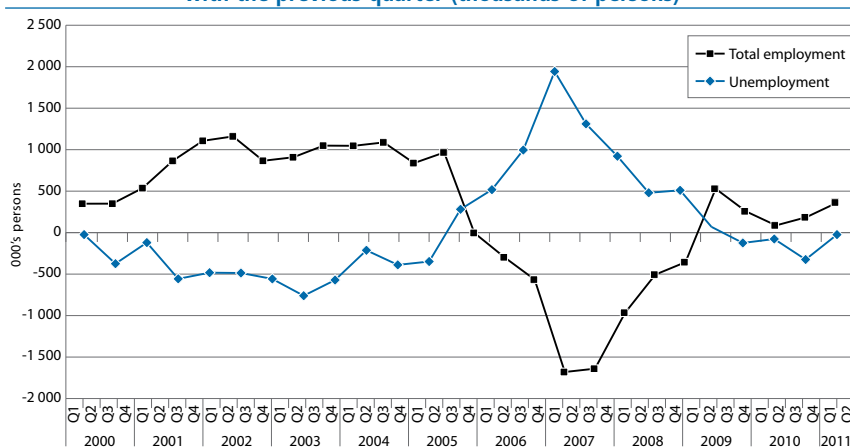
Chart 6: Employment growth (EU-27, Norway and Switzerland)



Source: CEDEFOP, 2010, "Skills supply and demand in Europe, Medium-term forecast up to 2010", <http://www.cedefop.europa.eu/EN/publications/15540.aspx>

The health and social work – white jobs - sector is much larger than the eco-industry sector. Some 19 million people worked in the sector in 2000 and 22 million in 2010. It is forecast<sup>(5)</sup> that 23 ½ million people will be working in the sector in 2020. These represent 8.7 %, 9.7 %, and 10.0 % of all employment in the EU. White jobs saw a growth rate of 1.6 % p.a. in 2000-2010 compared with 0.5 % p.a. for all sectors. Absolute and relative growth is forecast to slow with white jobs growing at 0.6 % p.a. in 2010-2020 and all sectors seeing only 0.3 % p.a. growth.

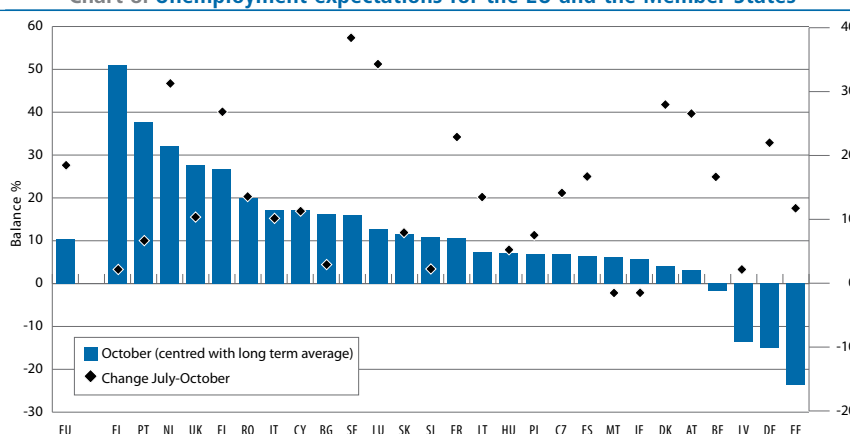
Chart 7: Employment and unemployment in EU, change compared with the previous quarter (thousands of persons)



Source: Eurostat, National Accounts and EU-LFS

The size of the sector and its relatively fast growth (twice as high) suggest that it will remain a key actor in providing new jobs in the years to come and of paramount importance if macro conditions produce low growth.

Chart 8: Unemployment expectations for the EU and the Member States



Source: DG ECFIN, Business and Consumer Surveys

(5) CEDEFOP: "2010 Skills: Supply and demand in Europe"

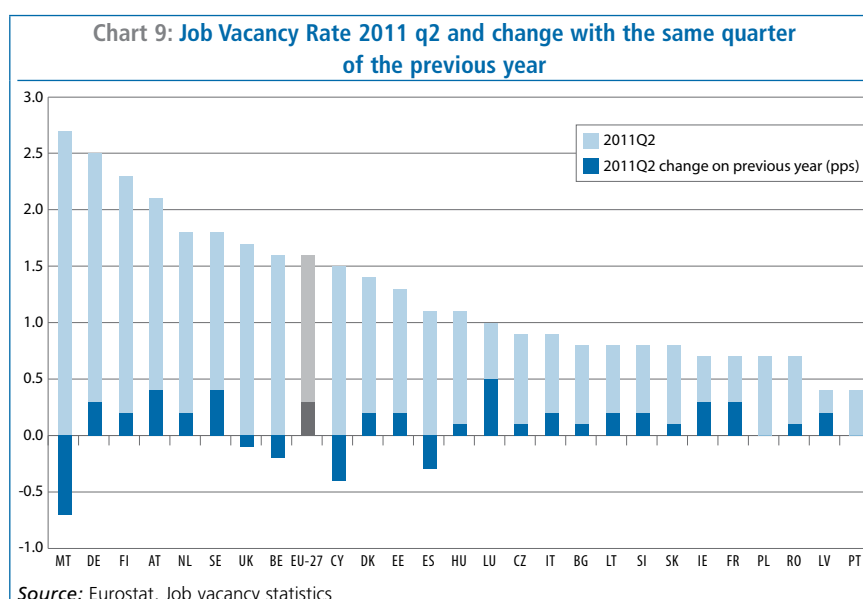
### 1.3. Unemployment and job vacancies

The EU unemployment rate did decline slightly between mid-2010 and early-2011. Since March 2011 however, it has again increased gradually, exceeding its peak of early-2010 in October 2011 (at 9.8%). Again, the situation is very diverse across the EU, both in terms of levels and decreases or increases. Worst off, with substantial increases (at least 5 pps since early 2008) are Spain, the Baltic States, Ireland, Greece and Bulgaria, although a turning point has been reached in the Baltic States. Unemployment rates have declined significantly in recent quarters in some Member States, including Germany and Sweden. The highest unemployment rates are to be found in Spain (22.8 % in October 2011), Greece, Latvia and Lithuania (all above 15 %) and Ireland, Slovakia, Portugal, Bulgaria and Estonia (all above 11%), with a substantially higher long-term component than before the crisis<sup>(6)</sup>. The lowest unemployment rates are in Austria, Luxembourg and the Netherlands (less than 5 %). Germany (5.5 %) is also quite low and has seen steady falls.

Even if unemployment rates are not rising further, they continue to feed into long-term unemployment. The share of the long-term unemployed as a proportion of total unemployment again exceeds 40 %, and is up by one-third compared to the 30 % registered two years ago and may climb further.

According to the Commission's consumer survey, consumer unemployment expectations have risen very strongly since August, pointing to a far from rosy future.

(6) From less than 2 % of the active population before the crisis (end of 2007) to more than 7 % in ES, IE, SK and the Baltic states in the second quarter of 2011. In SK, where there was already a high long-term unemployment rate before the crisis, the rate climbed by 3 % to 9.1 %.



Despite the high levels of unemployment, the EU job vacancy rate has been picking up and at 1.5 % (2011Q2) is higher than one year ago (by 0.2 pp). This means about six unemployed per vacancy. Some countries see rather higher vacancy rates – Malta, Austria, Germany, the Netherlands and Finland – and, with lower unemployment than the EU average, a much better demand situation of less than three unemployed per vacancy. This latter situation suggests an economy which is much closer to seeing real labour shortages in some sectors. However, Poland, which remained relatively unscathed during the crisis, is seeing little rise in vacancies and Spain has seen a further decline in vacancies to 1.1 %, thus giving a rate of about 20 unemployed per vacancy.

Plotting the Beveridge Curve, which relates job vacancies (measured below by the share of firms reporting labour shortages) and unemployment rates, suggests a risk of increased mismatches of skills post-crisis and higher so-called equilibrium unemployment<sup>(7)</sup>. At the EU level, both unemployment and vacancy rates increased since early 2010, suggesting such a risk. Individual Member States see rather different movements in

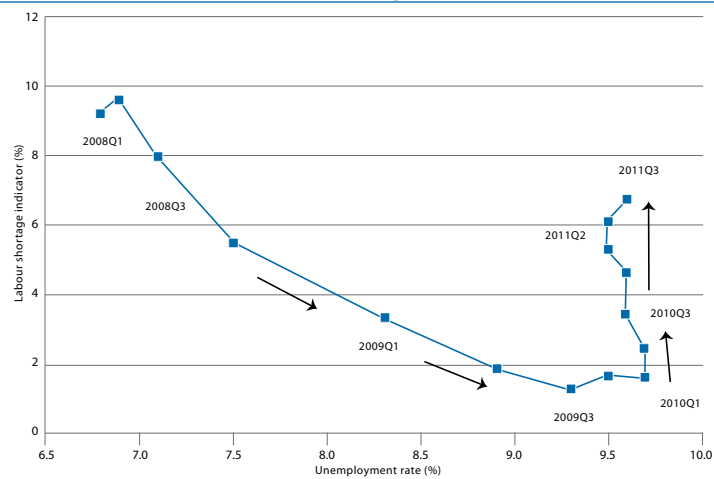
(7) See also the Quarterly Review of the EU Employment and Social Situation, March 2011.

their Beveridge Curve. Germany has seen a leftwards shift indicating lower equilibrium unemployment and less labour demand and supply mismatch. Conversely, the UK Beveridge Curve is similar to the EU-level curve. Diversity seems set to continue irrespective of the macro picture.

### 1.4. Youth

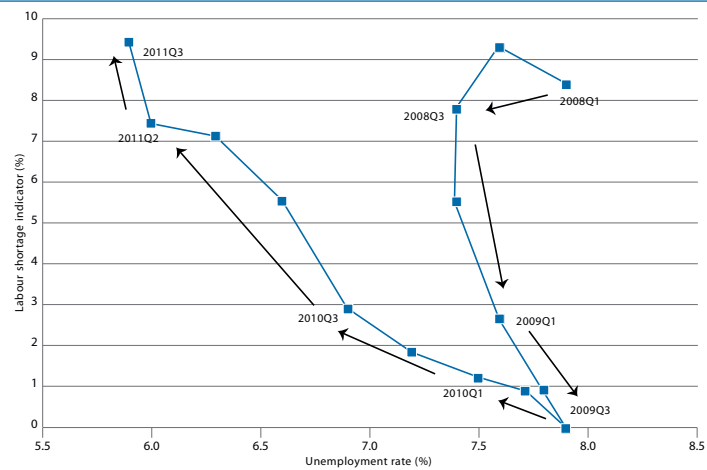
Young people remain the hardest hit by the crisis and its aftermath. Youth unemployment in Europe continued its rise in September 2011, reaching 21.4 %, over twice that of adults and 0.5 pp above its level of 12 months ago. Again, the situation is very diverse across Member States. Germany, the Netherlands and Austria have the least severe youth unemployment problems with rates of 7-9 %. The worst rates are in Spain (48 % in September 2011), and Greece, Lithuania, Slovakia, Latvia, Ireland and Italy (all in the 25-45 % range). In terms of changes over the last 12 months, the rate has risen most in Greece, Cyprus, Spain, Bulgaria, Malta and the UK. Rates have declined significantly in the Baltic States, from very high levels last year. This worrying, if very divergent, pattern is likely to continue in the coming months and a faltering recovery will worsen things.

Chart 10: Beveridge curve EU



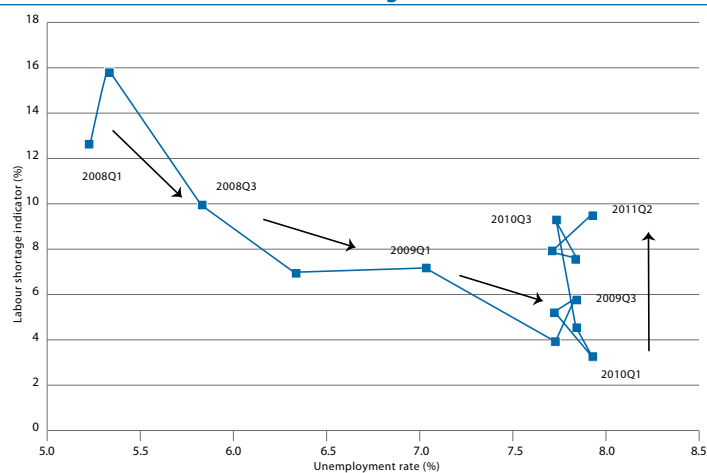
Source: Eurostat EU-LFS and DG ECFIN, Business and Consumer Surveys

Chart 11: Beveridge curve Germany



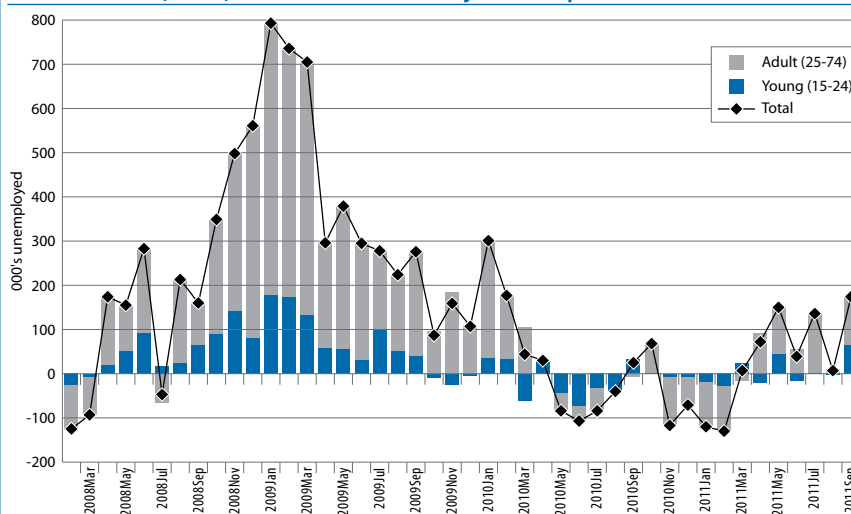
Source: Eurostat EU-LFS and DG ECFIN, Business and Consumer Surveys

Chart 12: Beveridge curve UK



Source: Eurostat EU-LFS and DG ECFIN, Business and Consumer Surveys

**Chart 13: Monthly change in the number of unemployed for youth (15-24), adult (25-74) and total in the EU July 2008–September 2011**



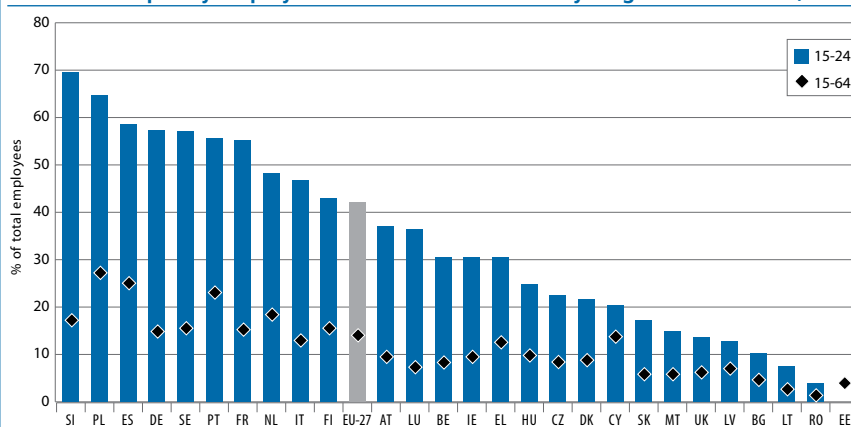
Source: Eurostat EU-LFS

The decrease in permanent jobs (see Section 2.2) has hit young people disproportionately and even though over-represented in temporary contracts (see Chart 14), the net growth in the latter in recent months has not significantly benefited young people.<sup>(8)</sup>

Even among young workers, the incidence of temporary work has a marked age profile and is especially concentrated among the youngest.

Furthermore, there are big variations between Member States. In Germany, Slovenia, France and Sweden there is a steep age profile with temporary contracts particularly concentrated among the young.

**Chart 14: Temporary employment in Member States for young and all workers, 2010**



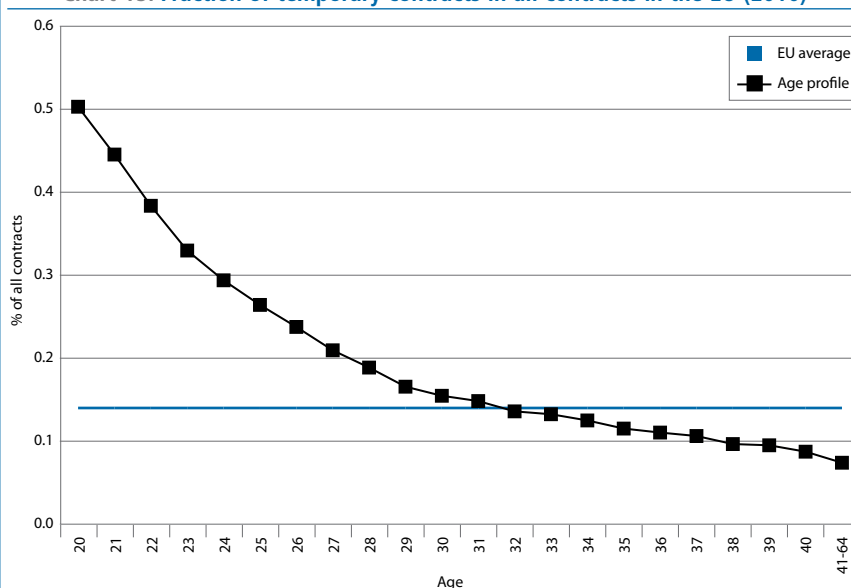
Source: Eurostat, EU LFS.

Note: Data missing for 15-24 age group in EE.

For the workforce as a whole, many temporary contracts are not chosen and the worker would prefer a permanent job. However, for young workers temporary contracts are quite often linked with an apprenticeship or other form of education and training, especially in Germany, the Netherlands, Luxembourg, Austria, and Denmark.

Temporary contracts account for over 50 % of all new hires across the EU. Almost 60 % of young people (20-24) got a job this way. Again, cross country divergences are great: more than 70 % of young people in Slovenia, Portugal, Spain, Poland and Sweden were hired through a temporary contract.

**Chart 15: Fraction of temporary contracts in all contracts in the EU (2010)**

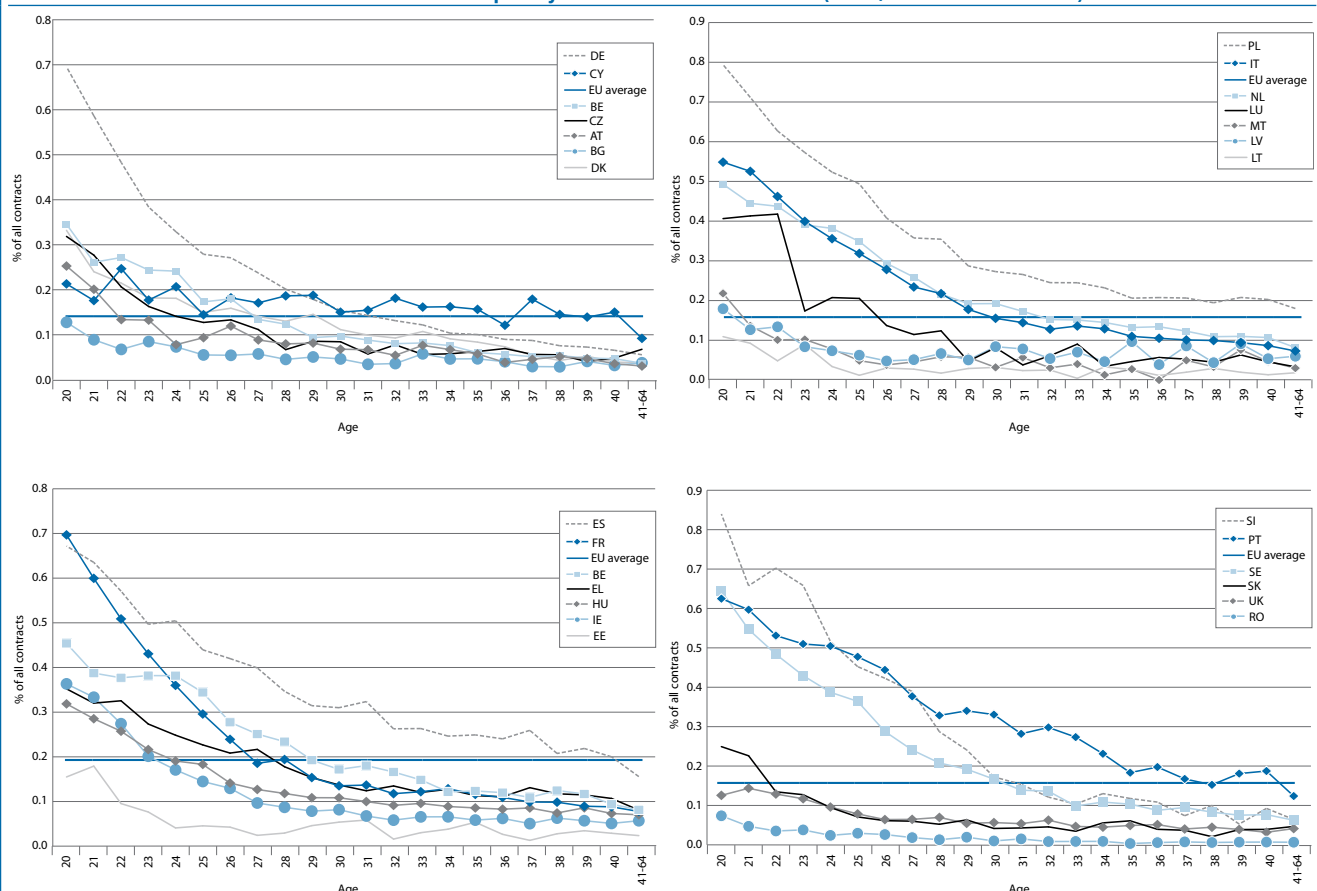


Source: DG EMPL calculations based on EU-LFS.

To substantially reduce youth unemployment, greater recourse to temporary contracts should be considered, especially those linked with further vocational education and training, as these can facilitate transitions into quality employment, as observed in some countries (Austria, Sweden, Slovenia, Germany, the Netherlands).

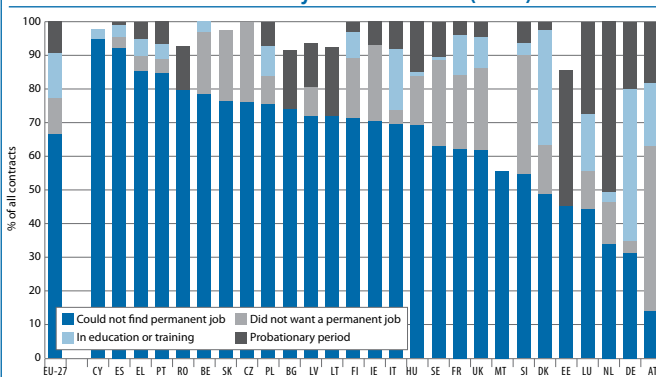
(8) See extensive analysis in *Employment in Europe 2010*, Chapter 3, "Youth and labour market segmentation".

Chart 16: Fraction of temporary contracts in all contracts (2010, EU Member States)



Source: DG EMPL calculations based on EU-LFS.

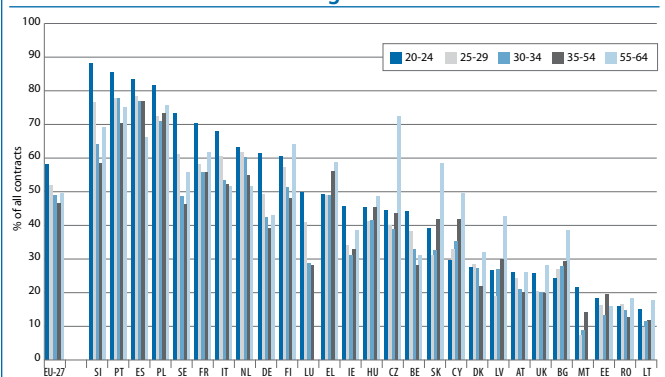
Chart 17: Main reason for temporary employment - distribution by Member State (2010)



Source: DG EMPL calculations based on EU-LFS

Note: Data missing for CY, RO, SK, BG, LV, LT, MT, and EE are not publishable.

Chart 18: Incidence of temporary contracts among hiring, by age



Source: DG EMPL calculations based on EU-LFS.

Note: The chart presents figures for the share of temporary workers among employees with short tenure in their current job, i.e. less than one year. Using short tenure employees as a proxy for new recruitments, this measure provides an indication of the extent to which firms use temporary contracts.



## 1.5. Incomes and poverty

In most European Countries, automatic stabilisers and the stimulus packages adopted at the beginning of the crisis have contributed to sustaining households' disposable income overall. Between 2007 and 2009, increases in gross disposable household incomes ranging from 1 to 9% were recorded in two-thirds of EU countries, including countries that experienced strong economic and employment shocks (see first column in Table 1).

However, EU-SILC data on the distribution of individual disposable incomes show that the crisis has affected incomes in some parts of the distribution and during the most recent period for which data is available. For the 2009 reference year (EU-SILC 2010), disposable income of households has fallen significantly, by more than 15% in the middle of the distribution in Lithuania and Latvia, by 8% in Estonia, and by 2-4% in Ireland, the UK and Spain.

In most countries, social transfers have afforded more protection to people at the lower end of the income distribution from the fall in incomes as com-

pared with the rest of the population (slight increase of P10). However in some countries (Spain, France, Malta, Slovenia) people on low income have been relatively more affected than the rest of the population. In these countries, while the richest 10pc of the population (P90) maintained or increased their income between 2008 and 2009, the poorest 10pc (P10) saw their income dropping. In the Baltic countries, where unemployment exploded and safety nets are weak, the fall in median household income is consistent with the overall fall in total gross household disposable income as registered in the National Accounts<sup>(9)</sup>. In the UK and Ireland, the fall in median

**Table 1: Change in Real Gross Disposable Income of Households (2007-2009), and changes in the levels of household disposable income as measured by EU-SILC**

In % of base year	Change in GDHI (National Accounts)	Change in the level of disposable income at different points of the distribution (EU-SILC)					
	2007-2009	2007-2009 (income reference year using SILC 2008 and 2010)			2008-2009 (income reference year using SILC 2009 and 2010)		
EU-27	1.9						
RO	9.2	44.2	32.6	25.8	15.5	8.5	7.8
PL	8.1	19.6	21.3	17.4	6.1	6.5	6.9
SK	7.5	15.6	18.3	26.5	5.5	7.9	7.6
CY	5.3						
SE	5.1	7.4	10.0	10.3	2.9	2.4	1.6
PT	5.0	8.6	6.6	1.5	5.5	4.8	3.0
ES	4.0	-11.4	0.6	4.5	-8.9	-2.0	0.7
BE	3.7	8.3	8.2	9.3	0.7	0.8	2.4
FI	3.2	9.5	7.9	5.3	3.5	1.8	0.8
IE	2.9	8.6	1.7	-3.7	-2.0	-2.4	-5.1
SI	2.7	7.1	7.7	9.1	-4.5	-1.1	1.9
UK	2.3	4.3	0.1	1.8	-0.9	-3.9	-4.7
CZ	2.0	11.6	10.8	11.9	1.5	2.5	3.9
FR	1.7	2.9	5.6	5.6	-1.3	1.4	1.7
EL	0.7	13.6	11.2	8.4	4.2	4.1	3.4
DE	0.4	2.6	2.7	1.5	1.2	1.1	1.3
AT	0.3	8.0	8.5	10.1	2.4	3.7	6.6
LU	0.0	1.4	4.6	3.1	3.6	1.8	-1.4
NL	-0.6	4.6	3.9	2.0	3.1	0.7	-0.3
DK	-0.8	2.3	6.1	7.9	1.2	2.3	4.9
LT	-1.8	-11.9	-2.6	11.4	-25.3	-15.7	-10.8
IT	-4.0	1.9	1.9	3.9	1.0	1.9	1.0
HU	-7.2	6.6	7.5	5.5	0.4	-0.3	-1.4
EE	-7.5	9.2	3.2	8.7	-5.6	-7.8	-5.3
LV	-16.7	0.7	-5.4	-5.0	-11.4	-16.7	-15.1
BG		34.4	38.9	29.5	5.1	6.7	2.9
MT		5.8	4.0	7.3	-3.0	-1.8	-0.6

**Sources:** Eurostat, National Accounts and EU-SILC (ilc\_di01). P10, P50 and P90 correspond to the level of income under which 10% (respectively 50% or 90%) of the population lives. The figures presented in this table refer to the evolution of these values expressed in national currencies over time.

**Reading note:** Between 2008 and 2009, the income level under which 10% of the Belgian population lives increased by 0.7%

(9) Some of the discrepancies observed between the changes in total gross household disposable income recorded through national accounts and the changes in different points of the distribution as recorded by SILC may be partially explained by methodological biases linked to the scope, reference periods and definitions.

**Table 2a: Evolution of at-risk of poverty rates and material deprivation in the early stages of the crisis; by country EU SILC 2008 to 2010 (income reference years 2007 to 2009)**

	At risk of poverty			Material deprivation			Material deprivation rate of people at risk of poverty			Deprived of at least 2 items in the economic strain list.		
	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010
EU-27	16.4	16.3	16.4	17.3	17.1	17.4	40.9	41.3	44.8	30.3	30.7	31.3
BE	14.7	14.6	14.6	11.6	11.4	12.3	38.5	39.3	40.3	20.2	20.2	21.1
BG	21.4	21.8	20.7	55.0	55.5	55.6	93.9	93.7	92.7	67.6	66.9	67.7
CZ	9.0	8.6	9.0	16.2	15.6	15.1	49.7	49.8	51.7	31.7	31.9	31.4
DK	11.8	13.1	13.2	5.4	6.0	6.1	17.1	17.9	18.0	9.1	11.3	11.8
DE	15.2	15.5	15.6	13.0	12.5	11.1	41.3	41.2	39.5	24.7	24.0	22.6
EE	19.5	19.7	15.8	12.4	17.1	:	33.8	38.8	53.6	20.4	28.3	37.3
IE	15.5	15.0	:	13.6	17.1	:	29.6	39.5	:	26.7	35.2	:
EL	20.1	19.7	20.1	21.8	23.0	24.1	47.5	52.5	59.0	35.0	39.2	39.0
ES	19.6	19.5	20.7	8.7	11.3	13.2	18.2	24.9	28.9	23.4	28.8	31.8
FR	12.7	12.9	13.5	13.1	13.5	12.6	40.2	41.8	39.9	27.3	26.6	25.6
IT	18.7	18.4	18.2	16.1	15.6	15.9	38.3	36.2	39.2	30.5	31.0	30.8
CY	16.2	16.2	:	23.3	21.2	:	48.0	44.9	:	41.4	39.4	0.0
LV	25.6	25.7	21.3	35.2	39.7	46.1	65.9	65.2	75.4	51.5	60.6	65.2
LT	20.0	20.6	20.2	22.2	27.0	36.0	48.2	49.5	58.3	34.0	43.1	58.9
LU	13.4	14.9	14.5	3.5	4.0	4.1	17.3	16.3	15.0	10.3	12.4	11.8
HU	12.4	12.4	12.3	37.1	40.3	39.9	67.0	73.4	80.1	59.8	64.1	62.8
MT	14.6	15.1	15.5	13.3	14.8	14.7	26.4	34.8	33.4	36.8	34.2	31.8
NL	10.5	11.1	10.3	5.2	5.2	7.2	21.0	21.9	25.4	11.7	10.3	13.6
AT	12.4	12.0	12.1	13.7	10.9	10.6	41.5	36.9	40.6	24.3	20.3	19.8
PL	16.9	17.1	17.6	32.3	29.5	28.4	58.5	57.3	57.0	51.5	49.5	49.0
PT	18.5	17.9	17.9	23.0	21.5	22.5	45.8	45.5	47.2	43.1	41.0	41.3
RO	23.4	22.4	21.1	50.3	49.3	49.2	77.5	77.6	79.4	56.4	57.1	57.4
SI	12.3	11.3	12.7	16.9	16.2	:	42.7	40.9	41.9	32.7	31.4	33.5
SK	10.9	11.0	12.0	27.8	24.5	24.9	59.3	58.4	59.7	42.8	40.2	41.5
FI	13.6	13.8	13.1	9.1	8.2	8.4	28.8	28.4	27.9	18.2	16.5	15.7
SE	12.2	13.3	12.9	4.6	4.8	3.9	14.0	17.5	15.9	10.5	10.7	9.2
UK	18.7	17.2	:	11.3	10.3	:	28.4	25.5	:	21.9	:	:

Source: Eurostat, EU-SILC

Note: Data for EU-27 2010 Eurostat estimates

Reading note: The list of economic strains contains the five following items: (1) pay the rent, mortgage, or utility bills, (2) keep the home adequately warm, (3) face unexpected expenses, (4) eat meat or protein regularly, (5) go on holiday away from home a week a year.

income observed in 2008-2009 (based on the EU SILC survey), shows that the stabilisation of incomes observed over the 2007-2009 period may only have worked at the very beginning of the crisis (i.e. in 2008).

As long term unemployment shares rise and unemployment benefits run out, there is now a risk of seeing a significant decline in disposable income for low earners. As their propensity to consume tends to be high, this may have a long-term impact on domestic demand.

The relative risk of poverty has remained stable at EU level between

2008 and 2009 (EU SILC 2009 and 2010). However there are signs of rising poverty in many Member States. In a few countries, the decline of median incomes, on which the poverty lines are set, has automatically led to decreases in or stagnation of the risk of poverty (-4 pp in Latvia, Estonia, -1.5 pp in the United Kingdom, stagnation in Ireland). This apparent improvement in relative poverty is misleading as it may reflect the fact that people with an income slightly below the poverty line may move above it although their situation has not changed or has even got worse. In Spain and Slovenia, the

poverty rate has increased despite a similar decrease of the threshold, showing a significant decline in living conditions in those countries. In Slovenia, monetary poverty rates have increased by 1.4 pp.

In 2010 (EU SILC 2010), material deprivation has remained stable at EU level, but it has increased by more than 3pp for people at risk of poverty, pointing to a relative deterioration in living conditions among people with the lowest incomes. Dramatic increases are recorded in some countries where the crisis has been especially severe. Material deprivation

**Table 2b: Evolution of the share of jobless households (zero or very low work intensity) and in-work poverty; by country, SILC 2008 to 2010 (activity reference years 2007 to 2009)**

	People living in jobless households			In-work poverty		
	2008	2009	2010	2008	2009	2010
EU-27	9.0	9.0	9.9	8.6	8.4	8.5
BE	11.7	12.3	12.6	4.8	4.6	4.5
BG	8.1	6.9	7.9	7.5	7.4	7.6
CZ	7.2	6.0	6.4	3.6	3.1	3.7
DK	8.3	8.5	10.3	5.1	5.9	6.6
DE	11.6	10.8	11.1	7.1	6.8	7.2
EE	5.3	5.6	8.9	7.3	8.1	6.4
IE	13.6	19.8	:	6.5	5.4	:
EL	7.4	6.5	7.5	14.3	13.8	13.8
ES	6.2	7.0	9.8	10.7	11.4	12.7
FR	8.8	8.3	9.8	6.8	6.7	6.6
IT	9.8	8.8	10.2	8.9	10.2	9.4
CY	4.1	4.0	:	6.4	7.0	:
LV	5.1	6.7	12.2	11.0	11.1	9.7
LT	5.1	6.9	9.2	9.4	10.4	12.3
LU	4.7	6.3	5.5	9.4	10.0	10.6
HU	12.0	11.3	11.8	5.8	6.2	5.3
MT	8.2	8.4	8.4	5.1	6.0	5.9
NL	8.1	8.3	8.2	4.8	5.0	5.1
AT	7.8	7.2	7.7	6.4	5.9	4.9
PL	7.9	6.9	7.3	11.5	11.0	11.4
PT	6.3	6.9	8.6	11.8	10.3	9.7
RO	8.2	7.7	6.8	17.7	17.9	17.3
SI	6.7	5.6	6.9	5.1	4.8	5.3
SK	5.2	5.6	7.9	5.8	5.2	5.6
FI	7.3	8.2	9.1	5.1	3.7	3.6
SE	5.4	6.2	5.9	6.8	6.9	6.5
UK	10.4	12.6	:	8.5	6.7	:

Source: Eurostat, EU-SILC (ilc\_lvh11 and ilc\_iw)

Note: Data for EU27 2010 Eurostat estimates

increased by more than 10 pp since 2008 in Lithuania and Latvia, and by 2 to 5 pp in Hungary Greece, Spain (2008-2010) and Ireland (2008-2009). People below the poverty line in particular report increases in material deprivation (+20 pp in Estonia, +10 pp in Greece, Spain, Latvia, Lithuania, Hungary).

Increasing difficulties in coping with necessary expenses are also reported by the population in general. The number of people who declared facing at least two difficulties in the list of economic strains<sup>(10)</sup> rose by

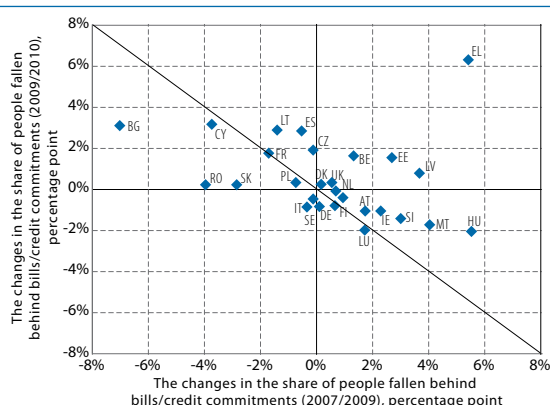
1 pp across the EU. It has increased significantly in Greece, Spain, Ireland and the Baltic States since 2008. This trend is also reflected in the Eurobarometer study which shows an increase of the number of people falling behind with their bills and credit commitments.

The crisis has led to increased risks of long-term exclusion from the labour market and society. Between 2008 and 2010, the share of children and adults living in jobless households (households with zero or very low work intensity) increased from 9% to 10% in the EU overall. The situation has significantly worsened with an increase of 1 pp or more in

Bulgaria, Denmark, Estonia, Greece, Spain, France, Italy, Latvia, Lithuania, Poland, Portugal, Slovenia and Slovakia. In 2010, the share of people living in jobless households exceeded 10% in Belgium, Denmark, Germany, Ireland, Italy, Latvia, Hungary and the UK. Among such jobless households, lone parents and their children are particularly at risk of long-term exclusion.

(10) Pay their rent, mortgage or utility bills; keep their home adequately warm; face unexpected expenses; eat meat or protein regularly; go on holiday.

**Chart 19: The change in the percentage of people falling behind bills and credit commitments**

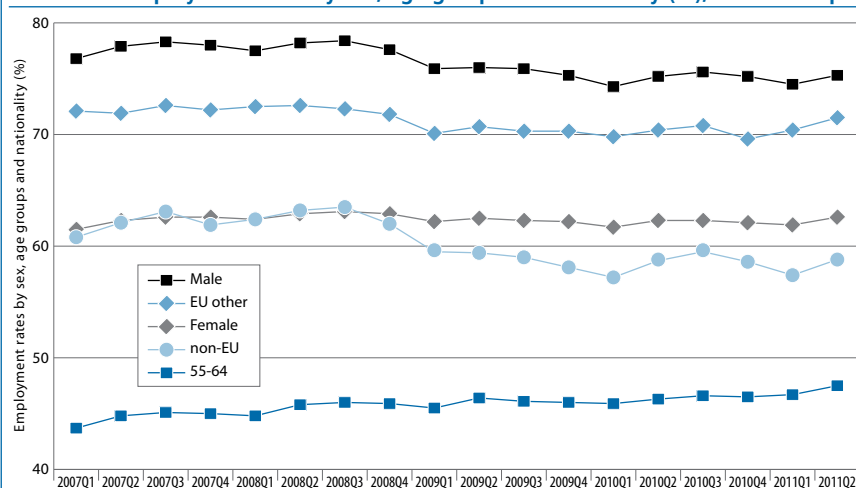


Source: Special Eurobarometer No 279 (2007), No 321 (2009), and No 355 (2010).

In 2009, (EU SILC 2010) 8.5 % of people employed lived under the poverty threshold, a similar level to before the crisis. The factors explaining the persistence of in-work poverty are analysed in Chapter 4 of this review. In some countries (Belgium, Ireland, Greece, France, Latvia, Hungary, Austria, Portugal, Romania, Slovakia, Finland, Sweden and the UK), the crisis has led to a reduction in the in-work poverty rate due to the fact that the most vulnerable workers were the first ones to lose their jobs. However, the current job situation is likely to lead to a further increase in in-work poverty in the medium term since most of the jobs created are under temporary contracts which have been identified as a factor of in-work poverty in many countries.

Access to essential health and social services has worsened during the crisis. Eurobarometer data shows that in some countries citizens report facing difficulties accessing health care. In October 2010, 29.6 % of EU respondents said that the affordability of healthcare had become somewhat or much more difficult 'in the last six months'. It remains to be seen whether the results of the 2010 EU-SILC data on the shares of people reporting unmet need for healthcare will confirm these perceptions. Rises in unmet need for care might be due to high out-of-pocket payments that people can no longer afford or weakened public provision of services.

**Chart 20: Employment rates by sex, age groups and nationality (%), 2007-2011q2**



Source: Eurostat EU-LFS

Note: All employment rates (except 55-64) are for age group 20-64.

## 2. STRUCTURAL CHALLENGES AND OPPORTUNITIES

### 2.1. Employment rates

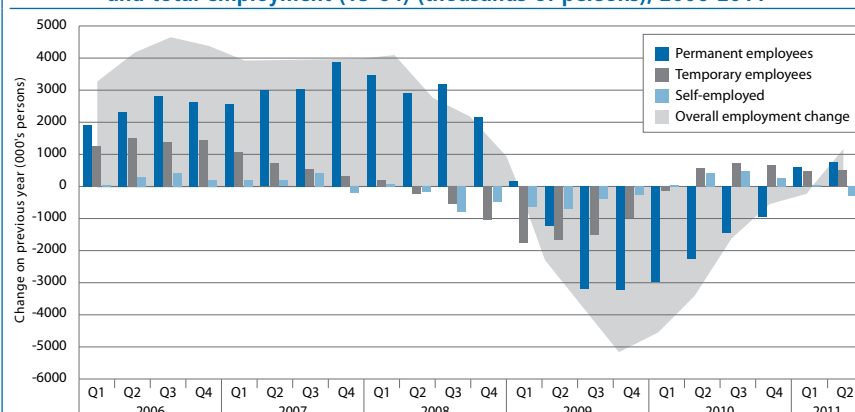
The employment rates of female, older, and non-EU workers remain challenging. The gap between the average male and female employment rates has decreased since early-2008, as men were harder hit by the crisis<sup>(11)</sup>. Nevertheless, the female employment rate remains relatively low at 62.6 % in 2011Q2. On the other hand, the employment rate of older workers has increased during the crisis (to 47.5 % in 2011Q2), mainly on account of female, older workers. Among foreigners, citizens from other Member States continue to show a higher employment rate than nationals (at 71.5 % in 2011Q2), while the employment rate for non-EU citizens lags behind, at 58.8 % in 2011Q2, 10 pp behind the rate of nationals and about 5 pp below the pre-crisis level.

### 2.2. Employment contract types

The recent recovery in employment mainly stems from a rise in temporary jobs. The number of workers in the EU on a permanent contract has risen only moderately over the last four quarters. In 2010, 23 Member States had seen a fall in the number of employees with permanent jobs, in comparison to 2009. There was however a net gain of permanent jobs in Belgium, Cyprus, Luxembourg and Sweden. Although the decline in permanent contracts has slowed during the course of 2010, the most significant fact was the increase in temporary contracts as of the second quarter of 2010. Germany's employment recovery has come about entirely through more temporary contracts which now account for

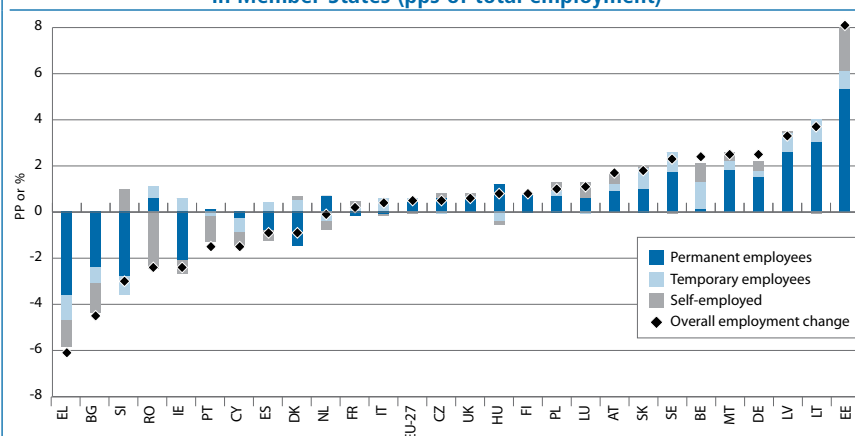
(11) See also the September 2011 issue of the Quarterly Review of the EU Employment and Social Situation, p. 16 and following. Employment rates are for the 20-64 age group.

**Chart 21: Year-on-year change in permanent, temporary, self employment, and total employment (15-64) (thousands of persons), 2006-2011**



Source: Eurostat EU-LFS

**Chart 22: Contribution to year-on-year employment change, 2011 q2, in Member States (pps of total employment)**



Source: Eurostat EU-LFS

The long-term trend of over-proportionate increases in very high income continued. The crisis does not seem to have increased inequalities across the board, as capital income was hit hard and short-term work arrangements and social transfers often kept income levels up. However, across Europe, the crisis has hit some groups that face increased marginalisation harder (migrants, the homeless, Roma). These groups will continue to be most vulnerable in the coming months. Two recent studies show that on-going fiscal consolidation reforms are likely to have strong distributional impacts. In particular, they highlight the regressive impacts of the reforms in the UK, notably on families with children, and the overall progressive impacts of the reforms undertaken in Ireland so far<sup>(13)</sup>. Both case studies highlight the likely regressive impacts of cuts in expenditure on social services. What the crisis certainly changed is the perception of inequalities and fairness. According to an as yet unpublished Eurobarometer on the basis of field work undertaken in late-June and early-July, there is no Member State where people think that inequalities and poverty are handled better than they were five years ago. Unsurprisingly, the share of people who are discontented with the way inequalities and poverty are handled now is highest in countries that have been strongly affected by the crisis, notably in Greece (90%), Latvia and Lithuania (89%), and Romania (87%).

The crisis has led to increased risks of long-term exclusion from the labour market and society. In a number of countries, large unemployment shocks have led to a significant increase in the number of people having to rely on unemployment benefits and social assistance. The highest increases were observed in Bulgaria, Ireland, Spain, Greece and Romania for unemployment

15% of all employees. Though more flexible, high shares of temporary contracts in overall employment may mean reduced investment in training and they are often seen as being among the main drivers of in-work poverty. While such contracts facilitate labour market entry, if people remain trapped in them – which is more likely in times of labour market slack<sup>(12)</sup> – this would undermine progress towards the inclusive growth objective. Countries where this is a big issue include Spain, Italy, Portugal, Poland, France, Cyprus, Germany and Sweden both because of the high prevalence of temporary contracts and the high risk of poverty associated with them. Worsening

expectations may well delay any pick up in permanent jobs. Segmentation will remain constant or even rise.

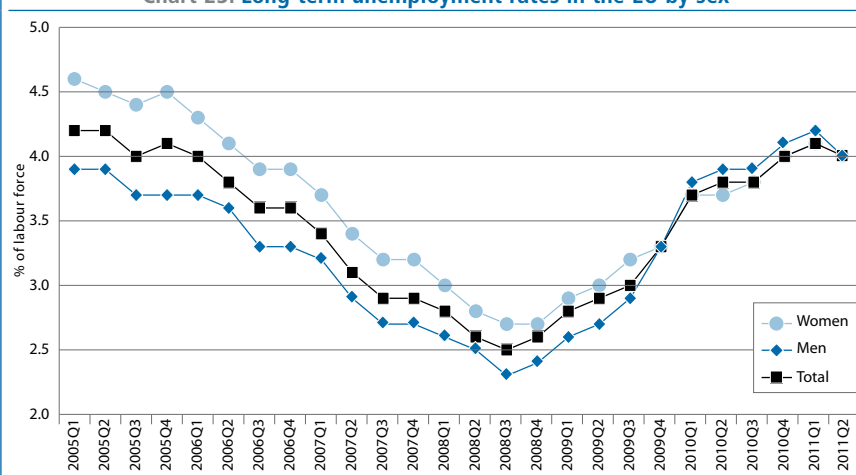
## 2.3. Inequality and polarisation

Inequalities and polarisation of incomes threaten social cohesion and sustainable growth. Rising inequalities and polarisation of incomes were observed before the crisis. This threatened social cohesion and the investments in human capital that are necessary for inclusive and sustainable growth. However, between 2005 and 2008, EU-level income inequality, as measured by the Gini indicator, was rather stable. Nonetheless, in some countries, especially those with a lower level of initial inequality, there was a considerable increase (Germany, Sweden).

(13) Jenkins, Brandolini et al., 'The Great Recession and the Distribution of Household Income', study presented at: 'Incomes Across the Great Recession', XIII European Conference of the Fondazione Rodolfo De Benedetti, Palermo, 10 September 2011, [http://www.frdp.org/upload/file/report\\_1\\_palermo.pdf](http://www.frdp.org/upload/file/report_1_palermo.pdf)

(12) See *Employment in Europe 2010* p. 144, establishing a significant correlation between long-term unemployment and the probability of transition from temporary to permanent work.

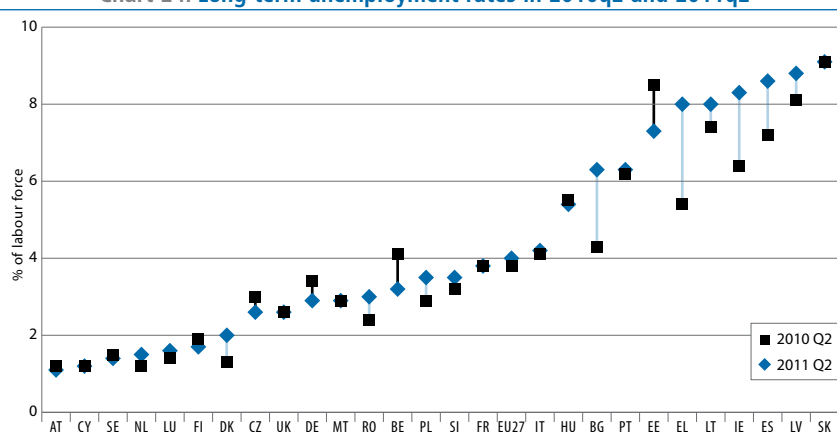
Chart 23: Long-term unemployment rates in the EU by sex



Source: Eurostat EU-LFS

quite diverse with Austria, Bulgaria, Spain, France, Ireland, Latvia, the Netherlands, Poland and Portugal seeing increased polarisation. However, some countries saw only an increase in lower-wage jobs – Greece, Denmark, the UK, Romania and Hungary – while others saw an increase concentrated in higher pay levels – Sweden, Slovenia, Slovakia and Germany. Polarisation, albeit in diverse forms, seems likely to continue in the immediate post-crisis phase, irrespective of whether this brings growth or a renewed dip.

Chart 24: Long-term unemployment rates in 2010 Q2 and 2011 Q2



Source: Eurostat EU-LFS

Note: Data non-seasonally adjusted. PT break in series, no data until 2011

## 2.4. Productivity, wages and unit labour costs

Economic recovery has seen labour productivity growth return to pre-crisis levels while labour cost increases and thus unit labour cost growth have remained modest. In the EU overall, nominal unit labour costs are increasing at around 1% p.a. as wages grow marginally faster than productivity. The growth in nominal unit labour costs was not interrupted during the crisis, as reductions in compensation per employee were broadly neutralised by a decline in productivity.

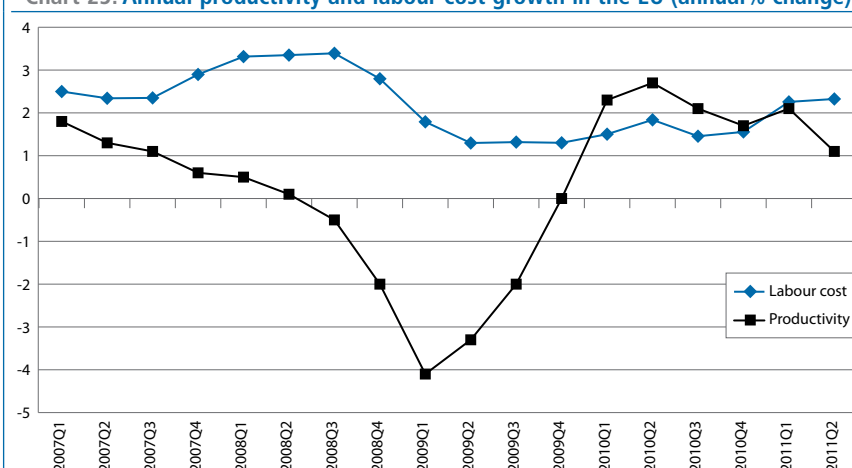
Between 2001 and 2010, some countries have seen big rises in unit labour costs compared to the EU average

benefits and in Bulgaria, the Czech Republic, Estonia, Latvia, Cyprus, Slovenia and Slovakia for social assistance benefits. The persistence of high rates of long-term unemployment (above 6% in mid-2011) in most of these countries (see Footnote 8) is likely to aggravate this trend further. Long-term exclusion from the labour market weakens the capacity of individuals to re-enter the labour market and to take an active part in society.

Wage polarisation continued during the great recession. In the EU as a whole, job losses during the period 2008-2009 were concentrated in the middle wage levels, the highest 20% of earners actually saw a net increase in jobs, and the lowest 20% only a small fall. To some extent, this polarisation

mirrors the pattern of 1998-2007 when all wage levels saw an increase with the biggest increases in the highest and lowest levels. At national level, the situation has been

Chart 25: Annual productivity and labour cost growth in the EU (annual % change)



Source: Eurostat, National Accounts



Chart 26: Productivity growth vs. nominal compensation by country

Chart 26.1: Compounded productivity growth &gt; 10% – 2001-2010 and nominal compensation growth

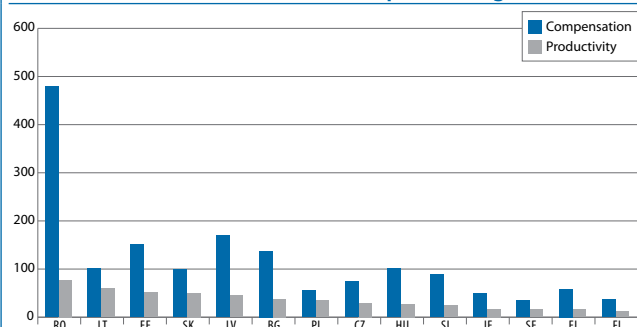
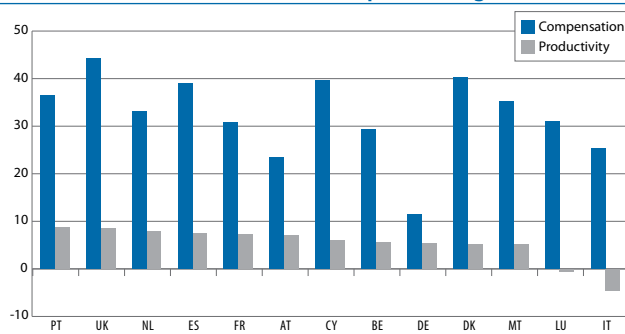


Chart 26.2: Compounded productivity &lt; 10% – 2001-2010 and nominal compensation growth



Charts 26.1 and 26.2 illustrate that strong ULC growth stems from compensation growth exceeding productivity growth and that differences in compensation growth is the prime driver of the differences in ULC growth across Member States.

Source: Eurostat, National Accounts

of 13.9% – especially Romania, Bulgaria, Latvia, Estonia, Slovenia and Hungary (all more than 50%) but also, albeit to a lesser extent (by 25-50%), Italy, Spain, Portugal, Greece, Ireland, the Czech Republic, Denmark, Cyprus, Luxembourg, Slovakia, Lithuania, Malta and the UK. Others have seen much lower increases, especially Germany and Poland (respectively 6% and 10%), whose price competitiveness at least before exchange rate effects has thus been enhanced. This variation in unit labour costs was driven more by differences in nominal labour costs than differences in labour productivity. Germany with 11.5% had the EU's lowest rise in compound growth of compensation per employee in 2001-2010. Most of the euro area countries saw increases of 25-40%, while Ireland saw 50% and Greece 58%. Compound growth of labour productivity averaged 8.0% in the EU (and 5.1% in the euro area). Germany performed a little above the euro area average at 5.4%. Spain, Greece and Ireland did (much) better at 7.4%, 15.6%, and 17.4% though this was clearly insufficient to offset their much higher wage growth. Most dramatic though is the case of Italy which saw compound labour productivity 'growth' of -4.6%. The only other EU country to see negative growth in 2001-2010 was Luxembourg with -0.5%. Poland's competitive strength is to a significant extent built on its labour productivity growing by 34.2% in 2001-2010.

Wage growth seems unlikely to increase in the coming months and even if productivity grows sustainably, unit labour costs will remain subdued overall. If growth falters, productivity will probably suffer again putting renewed pressure on competitiveness in some countries. In such countries, wage restraint may be necessary to improve competitiveness and restore external imbalances.

## 2.5. Skills mismatches

The labour market is undergoing significant structural shifts in occupations and skills needs, both in the short term as a result of sector shifts during the recession (see Chapter 1), and due to the trend towards high- and medium-level qualifications, driven by the growth in knowledge- and skill-intensive occupations<sup>(14)</sup>. Despite the increasing availability of a highly-qualified workforce, there is not only an on-going risk of shortages of specific types of skills, but also of under-utilisation of existing skills and competences<sup>(15)</sup>. The experience from past recessions shows that more

qualified people may face difficulties in finding jobs with appropriate levels of education and skill, thereby leading to under-utilisation of their skills and competences. At the same time, the technological upgrading of occupations may reduce the employment opportunities of low-qualified people who have lost their jobs. The risk of increased skills mismatches was already noted in Section 1.2 with an outwards shifting Beveridge Curve. Getting the right skills for the right jobs can reduce mismatches and is a further opportunity that must not be missed especially in order to avoid long term unemployment. Short-term matching is particularly about more effective retraining or apprenticeships for young people. Longer-term matching requires better vocational education and training systems.

Vacancies do exist and indeed have increased in the last year. They are unfilled for a number of reasons but the unemployed lacking the necessary skills to fill them, as well as lacking geographical mobility, can be addressed urgently. With the right skills, the unemployed can get back into work sooner and find work that makes the best use of their (new) skills. The economy also benefits if labour input is increased in this way and obviously fiscal constraints are lightened. Public employment services are in the front-line of re-skilling the unemployed but private employment agencies are also increasingly involved in providing new skills for job seekers.

(14) CEDEFOP, 2010, *Skills supply and demand in Europe, Medium-term forecast up to 2010*, <http://www.cedefop.europa.eu/EN/publications/15540.aspx>, recently updated ("What next for skills on the European labour market?"), Briefing note, [http://www.cedefop.europa.eu/EN/Files/9059\\_en.pdf](http://www.cedefop.europa.eu/EN/Files/9059_en.pdf)

(15) CEDEFOP, 2010, "The skill matching challenge, analysing skill mismatch and policy implications", [http://www.cedefop.europa.eu/EN/Files/3056\\_en.pdf](http://www.cedefop.europa.eu/EN/Files/3056_en.pdf)

Despite the deep impact of the crisis on employment in the manufacturing, construction and the financial sector, and the ensuing wage polarisation, there remains broad potential for employment recovery in these sectors. In the Member States which experienced the strongest recent employment recovery, such as Germany, Sweden and Poland, the export-led manufacturing sector was a strong driver due to its reliable demand for technicians<sup>(16)</sup>. This tends to underscore the importance of wage moderation (see Section 2.4) and justifies hopes that the job losses seen during the crisis are not irreversible. The financial sector is a case in point, as it was one of the fastest growing sectors in 2010 after the strong contraction in 2008-2009 (see Chart 4).

## 2.6. Renewed fiscal stimuli and “automatic” stabilisers

How much room is there for fiscal stimuli in view of the worsening economic situation? The expectation of a growth deceleration in coming months turns attention to the room for fiscal stimulus. Currently, employment policies need to face the limited fiscal space in several Member States<sup>(17)</sup>. Employment

policies must be focused on those groups at risk of social exclusion while remaining consistent with the recommended rapid pace of fiscal consolidation. These policies should speed up moves towards a more growth-friendly tax structure (shifting part of the tax burden away from labour, to indirect, environmental and property taxes) and support low-income groups (who have the highest propensity to consume). Labour market policies also need to address the significant mismatches created by the economic crisis while reforms of employment protection legislation need to improve reallocation of labour between different sectors and fight duality.

When allowed by fiscal consolidation constraints, the dampening role of automatic stabilisers could support the economy. Automatic stabilisers cushion household disposable income and household demand in the event of macroeconomic shocks. A recent study<sup>(18)</sup> found that, in the case of a proportional income shock,

38 % of the shock would be absorbed by automatic stabilisers in the EU, against 32 % in the US (with considerable heterogeneity in the results among Member States: from 25 % for Estonia to 56 % for Denmark). The graph below shows that, under the scenario of the autumn forecast, the share of social protection expenditure in GDP is projected to decline slightly in 2011-2013, but to remain above the pre-crisis level (2007). In view of weaker growth prospects and possibly more stringent fiscal requirements, it remains to be seen whether Member States can afford increased social protection expenditure.

Another recent study<sup>(19)</sup> looked at the impact of the 2008-2009 recession on household income. It concluded that, although GDP fell, gross household disposable income rose in most Member States between 2007 and 2009. The household sector on aggregate was protected from the impact of the downturn by additional support of governments through the tax and benefit system. Table 1 (from the latter study) illustrates, for a selection of OECD countries, the role of automatic stabilisers and fiscal stimulus during the recent recession.

Column (1) shows that gross household disposable income (GHDl) rose in most countries between 2007 and 2009 (Switzerland, Greece, Denmark and Italy are the exceptions). This contrasts with the results in Column (3), which shows what the change in GHDl would have been in the absence of automatic stabilisers and fiscal stimulus (as social benefits and taxes are kept at their 2007 values in these calculations). In this case, GHDl would have fallen (or have risen by a maximum of ½ %) in all selected EU Member States, except Belgium.

structural reforms, agreed in the respective Memorandum of Understanding.

- Member States facing market pressure should also achieve the headline targets contained in the latest update of their Stability or Convergence Programmes or in more recent budgetary plans, independently of macroeconomic conditions, and stand ready to pursue further consolidation measures if needed.

- Member States that have accumulated a significant adjustment gap under the EDP or have a high deficit should step up their consolidation efforts and aim for a sustainable correction of the excessive deficit by the agreed deadline. The measures necessary to close significant adjustment gaps under the EDP should be specified as soon as possible and no later than in the 2012 budgets and implemented rigorously without delay; limited downside revisions to the macroeconomic scenario should not result in delays in the correction of the excessive deficit.

- Member States which do not have an excessive deficit and which are on an appropriate path towards the MTO and where fiscal risks are limited could use the flexibility allowed by the Stability and Growth Pact and namely let the automatic stabilisers work around the path of structural fiscal adjustment, while ensuring the long term sustainability of public finances.

(16) See European Vacancy Monitor July 2011

(17) In October 2009, the ECOFIN Council agreed on principles for the fiscal exit strategies that it underlined the need for a timely consolidation of public finances, while keeping a balance between stabilisation and sustainability and taking country-specific circumstances into account. In the current situation of fragile market confidence and persisting and, for some Member States, intensified market pressures ensuring sustainability is the most promising strategy to underpin economic stabilisation. The ECOFIN council of 4 November has called Member States to fully implement their commitment under the SGP as well as the recommendation issued under the EU Semester and the EDP for the Member States concerned. Member States should moreover take into account the following principles in the design of their fiscal plans:

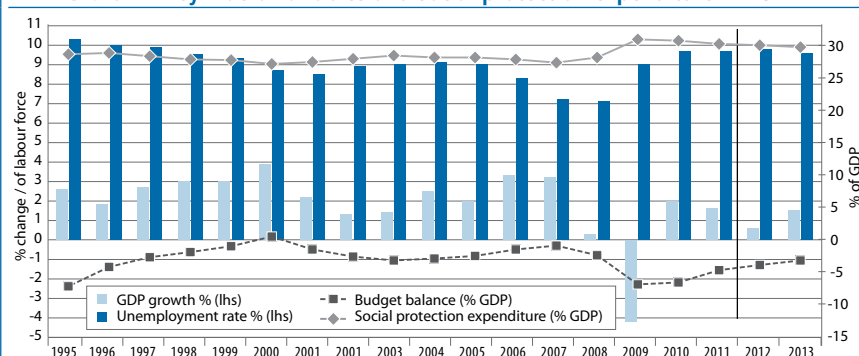
- Member States benefiting from a financial assistance programme should stick to the targets as agreed in the programme and should fully and timely implement the policy measures, including in particular

(18) Dolls, Fuest, and Peichl (2010), 'Automatic Stabilisers and Economic Crisis: US vs. Europe', NBER Working Paper No 16275, <http://www.nber.org/papers/w16275.pdf>.

(19) Jenkins, Brandolini et al., 'The Great Recession and the Distribution of Household Income', study presented at: 'Incomes Across the Great Recession', XIII European Conference of the Fondazione Rodolfo De Benedetti, Palermo, 10 September 2011, [http://www.frdi.org/upload/file/report\\_1\\_palermo.pdf](http://www.frdi.org/upload/file/report_1_palermo.pdf).



Chart 27: Key macro variables and social protection expenditure in EU-27



Source: DG ECFIN, Autumn forecast

The automatic stabilisers and (limited) discretionary measures have played an important role in supporting household incomes and aggregate demand. Limited room for fiscal manoeuvre would make their operation more difficult if the EU heads into renewed recession but they can still play a significant part in offsetting measures, particularly where fiscal space allows.

Table 3: Illustration of the role of automatic stabilisers and fiscal stimulus during the recent recession )

Changes 2007–9	GHDl (1)	GHDl holding social benefits at 2007 value (2)	GHDl holding social benefits and taxes at 2007 values (3)
Norway	8.3	5.4	8.3
Belgium	3.7	0.8	1.9
Switzerland	-0.2	0.5	1.5
Germany	0.5	-1.4	0.5
France	2.2	0.3	0.5
Finland	4.5	1.5	0.1
Austria	1.4	-1.2	0.1
Netherlands	0.3	-2.4	-0.5
Spain	4.0	0.0	-1.9
Greece	-1.3	-3.4	-2.4
UK	2.5	-1.6	-3.0
Denmark	-1.2	-3.2	-3.7
Sweden	4.2	3.0	-3.8
USA	2.5	-0.7	-4.6
Italy	-3.3	-5.2	-5.1
Ireland	3.7	-1.8	-7.4

Source: Jenkins, Bardolini et al., 2011

Notes: GHDl = Gross Household Disposable Income

(1): percentage change in real GHDl, 2007-9 and 2009.

(2), (3): percentage change in GHDl when social benefits held at 2007 values (2), and social benefits and taxes and social contributions at 2007 values (3).

Estimates for Greece and Switzerland refer to one year change, 2007-8, only.

Countries ranked by column 3 values.



# Shifts in the job structure in Europe during the recession<sup>(\*)</sup>

## 1. INTRODUCTION

There were five million fewer people in paid employment in the EU-27 in the second quarter of 2010 than in the second quarter of 2008 as a result of the economic crisis, the most severe in a generation. This chapter describes the impact of this recession on the structure of employment in the EU-27 using a relatively straightforward methodology for analysing employment developments that was developed in the US during the 1990s. This is referred to as the 'jobs approach' and it is seen to be consistent with general EU employment policy concerns, which are often expressed in terms such as 'more and better jobs' and 'new skills for new jobs'.

The methodology describes employment shifts in terms of jobs, where a job is understood as a given occupation in a given sector. This is an intuitively attractive definition and corresponds to what people think of when describing themselves in terms of their work – for example, being a secretary in a hospital, a salesman in a car showroom, or a scientist in the chemical industry. Moreover the concepts of occupation and sector correspond to the two fundamental dimensions of structural change, in which the 'sector' gives a description of *what type* of economic value is being created, and the 'structure of occupations' gives some indication of *how* this value is being created.

Empirically, the definition corresponds to standard classifications of occupations (ISCO-88) and sectors (NACE rev. 2.0), both of which are used as benchmark systems by Eurostat and (with some national variations) by European national statistical institutes. The approach implies a structural view of employment and of employment shifts and tells us in what jobs employment is growing, or declining, over a given period, with the jobs being defined at quite a fine level of detail in terms of both occupation and sector.

The richness of the jobs approach also enables us to make some qualitative evaluation of these quantitative employment shifts. The approach requires not only the definition of a job in an intuitive (but conceptually coherent and empirically practical) way, but also an analytically useful way of evaluating or classifying these jobs. The originator of the jobs approach, Nobel Prize winning economist Joseph Stiglitz, used the median wage of a job as a way of qualitatively ranking jobs. Indeed wages, as a measure of monetary compensation, are seen as a useful indicator with which to classify jobs, and in the US in particular, used as a general proxy for quality of work – see Levy and Murnane (1992), Ilg and Haugen (2000), and Wright and Dwyer (2003).

Apart from the intrinsic monetary value of the wage, the principal reasons for adopting the wage as a means of

ranking jobs are twofold. Firstly, wage income is both more measurable, and generally more widely measured, than other individual dimensions of job quality<sup>(1)</sup> such as cognitive richness of work, or work autonomy, which are also less often and less systematically addressed in surveys. Secondly, on the assumption that the wage of a job is likely to correlate with unobserved or less easy-to-observe dimensions of work, earnings are a 'sufficient salient aspect of job quality' (Wright and Dwyer, 2003) to be used as a proxy even if the concept itself is multidimensional.

Recent European research on job or work quality has followed the US example and acknowledged the importance of the wage dimension with Leschke and Watt (2008b, p. 6) observing that 'wages are arguably the most important field in regard to job quality'. In this argument wages are not just related to immediate purchasing power but also to other payments, such as pensions and social security benefits. Moreover, the status of a job in society is strongly related to its wage as well as to a number of non-pecuniary job characteristics such as skill-level, autonomy, cognitive richness, and job security. In other words, the use of wage as

(\*) By John Hurley and Donald Storrie EMCC, Eurofound

(1) However, the lack of availability of comprehensive wage data for EU Member States does make the task of establishing national job-wage rankings more difficult than in the US (see Annex 2).

a proxy of quality does not imply an exclusive regard for the monetary aspects of a job, but reflects the fact that wage levels are correlated with non-monetary aspects of job quality.

The purpose of the original American jobs-based analysis was to answer a particular policy concern in the 1990s, namely that, while nobody denied that the US was producing more employment, critics were arguing that the bulk of this employment growth appeared to be in low quality jobs. Joseph Stiglitz, then economic advisor to President Clinton, employed a jobs-based methodology to classify jobs created during this period with a view to testing the evidence.

The conclusion drawn was that the majority of the jobs created were of better quality, with 68 % of new employment being in jobs paying above the median wage (CEA 1996). Erik Olin Wright and Rachel Dwyer (2003) went somewhat further, utilising a more nuanced application of the jobs approach (based on dividing employment into job quintiles or deciles rather than the simple dichotomy of above- and below-median wage jobs used by Stiglitz), and confirmed that the distribution of employment growth in the United States in the 1990s had indeed been skewed towards higher-paid jobs. However, the latter research also noted significant growth at the bottom as well as the top of the wage scale, with a 'hollowing out' of the middle. This was taken as evidence of a more polarised expansion, in contrast to the employment growth of the 1960s, which had been more consistently skewed in favour of higher paid jobs.<sup>(2)</sup>

(2) The jobs methodology has been prominent in the polarisation research debate and Goos and Manning have founded evidence of polarised employment growth first in the UK (Goos and Manning, 2007) and more recently in the EU-15 (Goos and Manning, 2009). It should be noted that there are important differences between the methodology used by these authors and both the cited US research and Eurofound work. Other similar approaches can be found in OECD (2001) and OECD (2003) and more recently in Oesch and Rodrigues (2010).

Between the turn of the millennium and the onset of the current economic crisis in 2008, job growth was higher in EU-27, and significantly so in EU-15, than in the US – a reverse of the pattern in the previous decade. In an attempt to classify the jobs created in this 'golden age' of European job creation, Eurofound's Jobs Project (2006-2008) traced structural change between 1995 and 2006 in terms of median wages in jobs in 23 Member States. The motivations for carrying out the analysis were similar to those behind the original American work, namely to make an empirical evaluation of whether employment growth had been combined with, or had come at the expense of, overall employment quality. The Lisbon Strategy framework of more and better jobs justifies such an analysis as both timely and relevant.

This was the first application of the jobs-based methodology to EU labour markets. The report found differing patterns of employment shift across EU Member States, with the two most common being polarisation (greater growth at both ends with less growth in the middle of the wage structure) and upgrading (jobs growth skewed to the top of the wage distribution). Overall the aggregate pattern for the EU (EU-23, as noted) was one of upgrading, with some limited evidence of polarisation (Fernández-Macías and Hurley, 2008).

The fact that this aggregate pattern broadly corresponded to that observed in a comparable earlier period of employment expansion in the US gave some support to the idea that there are common underlying determinants of structural change in employment in developed market economies. A combination of technological change and globalisation are the most frequently cited factors but a plausible inference from the variety of national quintile patterns identified in the EU analysis is that institutional factors – which tend to vary from country to country – serve to mitigate or modulate the impacts of these more universal vectors of change (Oesch and Rodrigues 2010).

The sustained employment growth of recent times in both the US and

Europe is now in the past but, while the original purpose of the Jobs Project methodology was to study the changes in the structure of jobs over a longer time period of employment growth, it is equally possible to examine the shifts since the advent of the recession in 2008. Perhaps of most interest is to view the developments in the last two years against the backdrop of the previous decade. For example, has the qualitative change in the employment structure in the EU-27 during the recession diverged from the experiences of the recent decade, or is it more an acceleration of previously observed structural trends? As we will see in this chapter, it turns out to be primarily the latter.

It is important to emphasise the potential to expand the jobs-based approach. With a stable frame of jobs defined by NACE and ISCO, other sources of data that use these codes can be used to evaluate or classify jobs. Indeed in this chapter we also present a ranking of jobs according to the estimated average number of years of schooling of the job holders. This can be interpreted as a measure of the skill content of the job, based on the Eurostat Labour Force Survey (EU LFS) variable 'hatlevel', which captures the highest level of educational attainment of individual respondents. A more multidimensional job ranking has also been elaborated based on a synthetic indicator of non-pecuniary job quality (Fernández-Macías, Hurley and Storrie, 2011). This uses data from Eurofound's European Working Conditions Survey of 2005 and takes advantage of the fact that this survey has a richer coverage of quality of work dimensions than the EU LFS (though with more modest sample sizes). To these three ways of generating job quality proxies, we can potentially add others – share of permanent workers, share of graduate job-holders, etc. The approach of using a crosshatching of sectoral and occupational classification offers a structural view on labour market change that is both flexible and extensible.

The text box explains the basic steps of the jobs methodology.

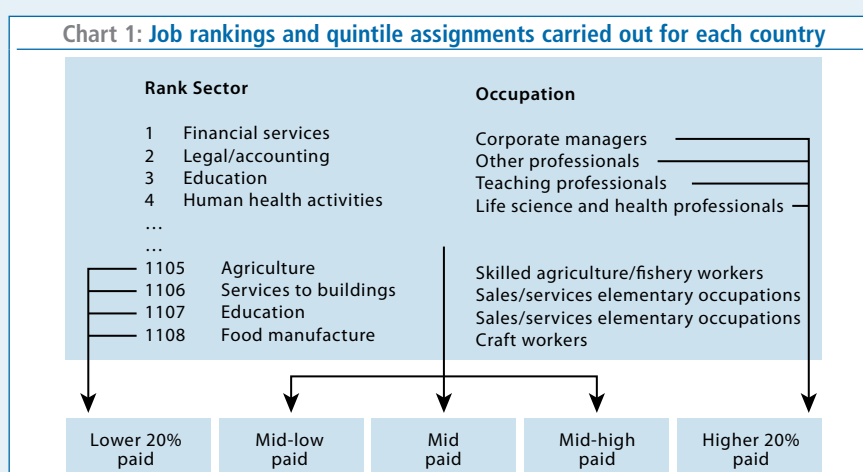
## Methodological note: the 'jobs-based' approach

The key (simplified) steps of the approach are as follows.

1. Using the standard international occupation (ISCO-88) and sectoral (NACE Rev. 2.0) classifications at a two-digit level, we create a matrix counting 88 different sectors on the horizontal axis and 27 occupational groups on the vertical axis. This generates a matrix of 2 376 'job' cells. In practice some of the possible combinations of occupation/sector do not exist (there are unlikely to be many precision craft workers in insurance companies for example) but the country total of job cells with employment varies from over 1 600 in Italy to just over 500 in Luxembourg.
2. We generate two separate job rankings in each country, one based on mean hourly wage and a second based on mean educational level of the job-holders. The wage ranking is our principle means of characterising jobs in terms of their 'quality' and the education-based ranking is a secondary ranking.
3. We allocate jobs to quintiles in each country based on our job-wage and education-wage rankings for that country. This creates two job-to-quintile assignments for each country, one based on wages and one on education. The best-paid or highest-skilled jobs will be assigned to the fifth quintile, the lowest-paid or -skilled to the first. Each quintile in each country should represent 20 % of employment in the second quarter of 2008, i.e. employment in the job is used as a weight before assigning to quintiles.\* Hereafter, both job-to-quintile assignments remain fixed for each country and we shift our focus to the EU LFS quarterly employment data where what we are interested in is the shift in employment at the quintile level in each country.

The reason for abstracting from job-level to quintile-level is strictly pragmatic: it allows us to make manageable the presentation of a very rich set of data in each country.

Chart 1 illustrates in simplified format the above three steps using some of the large employing top- and bottom-paid jobs at the EU level as examples (while the jobs are correctly assigned in terms of EU quintile, the individual job-wage ranks, that is 1–4, 1105–1108, are made up and for illustrative purposes only. See Annex 1 for the wage and education quintiles of a selection of high-employing individual jobs).

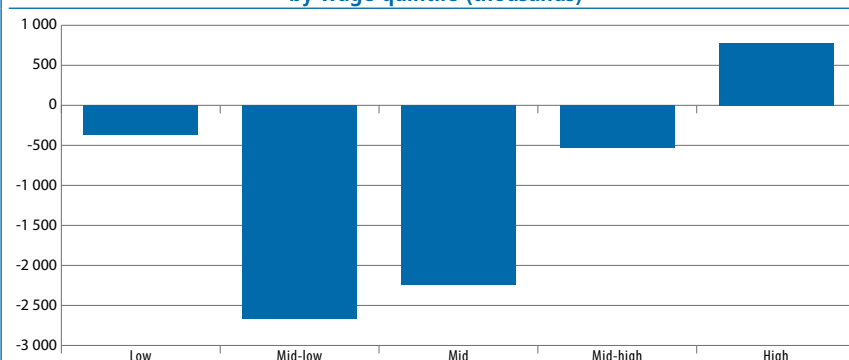


4. We then simply sum net employment change between the second quarter of 2008 and the second quarter of 2010 (in numbers of persons employed) for each quintile in each country to establish whether net job growth has been concentrated in the top, middle, or bottom of the employment structure. This generates a series of charts similar to Chart 3. Except where otherwise indicated, all charts in the review describe net employment change by quintile for the indicated country or for the EU as a whole. The EU aggregate charts are based on applying a common EU job-wage or job-skill ranking.

The resulting quintile charts give a simple, graphical representation of the extent of employment change in a given period as well as an indication of how that change has been distributed across jobs of different pay or skill levels. Chart 2, for example, illustrates employment change using job wage quintiles for the EU-27 as a whole during the crisis. The figure should be read from the leftmost bar (the lowest-paid jobs) to the rightmost (the highest-paid jobs). Net employment change is represented on the vertical axis; the fact that most of the bars are below the zero line confirms that net job losses were extensive (a decline of employment of around 2.7 million low-to-medium quintile wage jobs) and that employment grew only in the highest-paid jobs.

(\*) Large, 'lumpy' jobs with a big share of employment can tend to make the quintile employment totals uneven in some countries. However, in only one country – Romania – does this lead to individual quintiles containing more than 22.5% or less than 17.5% of a country's employment. This should be borne in mind when looking at charts for Romania. The single most common job in the country – skilled agricultural workers in crop and animal production – alone accounted for 20% of employment in the second quarter of 2008 and this results in an oversized bottom quintile and undersized second quintile.

Chart 2: Net employment change, second quarter 2008 to second quarter 2010, by wage quintile (thousands)



Source: EU LFS (authors' calculations)

This method also offers further possibilities of breaking these net employment changes down by gender, employment/professional status, working-time category (full-time, part-time), etc., which we explore later.

For a more extensive description of the data-processing involved in the jobs approach, see Annex 3. Further background documentation includes Stehrer and Ward (2008) and Fernández-Macías and Hurley (2008) from the original Eurofound research investigating employment change in the EU over the period 1995–2006.

## 2. DATA

The EU LFS is the source of all data used in the rest of this review, both the changes in number of job holders (of the working age population, 15–64 years of age) and the wages and education variables used to rank jobs. Regarding the wage data, it should be noted that the wage variable we use – *incmon*, from the EU LFS 2008 annual data – was voluntarily submitted to Eurostat by the national statistical institutes (NSIs) in the countries covered and Eurostat has not yet assessed the reliability of this variable. It does not form part of the obligatory EU-LFS data submissions and consequently was not available for all member states. For this review, we have used EU LFS 2008 annual wage data for 12 member states; national sources contributed the data for Denmark. The job-wage ranking for the other Member States was constructed as a weighted average of the available wage data for these 13 countries. Annexes 2 and 3 describe in detail how this was done and offer some justification for applying a common job-wage ranking where lack of adequate national data made it unavoidable.

It should be noted that, as of 2009, Eurostat has a mandate to begin collecting wage data from the NSIs as an obligatory variable in their annual data submissions for the EU-LFS. The 2009 annual data already contained wage data in decile format (*incdecil*)

for 21 Member States. This development, and the availability of data from the 2010 Structure of Earnings Survey in 2012, should help to generate more robust job-wage rankings for all member states in the near future.

Technically, recession in the EU began in the second quarter of 2008 and ended in the third quarter of 2009 after five quarters of consecutive negative growth. The quarterly peak-to-trough period of employment decline in EU-27 was from Q3 2008 to Q1 2010, during which employment in the EU shrank by over nine million (a reduction of over 4% of total employment). In this review we use a two-year timeframe (second quarter of 2008 to the second quarter of 2010) for our analysis, as it covers the period from before the collapse of the Lehman Brothers bank in September 2008 (seen by many as the trigger for the global crisis) to just after the stabilisation of EU-27 unemployment rates at around 9.5% (where they remained until May 2011).

There are other justifications for opting for this timeframe. In a recession, reductions in employment tend typically (but not systematically) lag output declines by two to three quarters (as they likewise tend to do in reverse in recovery periods), which justifies extending the period to beyond that of quarter-on-quarter output declines. Also, since the focus is on changes

in employment levels (which are not seasonally adjusted), it is convenient to select the same quarter in the two target years as a way of removing seasonal effects.

## 3. CHANGES IN JOB STRUCTURE DURING THE RECESSION

In this section, the 'jobs approach' is used to describe employment developments during the recession, looking first at overall shifts in the employment structure in the EU-27, and then drawing some comparisons between this period of employment decline and the preceding decade of employment expansion. The varying patterns of change in the individual Member States during the most recent period are described with employment change during the recession broken down into its components in terms of major sectoral aggregations, as well as worker characteristics (gender, age, etc.) and employment status. The objective is to show how the broad employment changes identified in the quintile charts interact with other dimensions of labour market development – the increasing participation of women, shifts in employment by sector of activity, changes in employment status – and how the recession has affected these interactions.

### 3.1. Comparison of pre-recession and recession periods using job-wage quintiles

In the decade to 2007, employment levels in EU-27 increased by over 20 million. Earlier analysis of this period of employment expansion using the jobs approach (Fernandez-Macias, 2010; Fernandez-Macias and Hurley 2008) emphasised the following broad developments:

- Net employment growth was strongest in the top two quintiles with higher paid jobs, especially in knowledge-intensive services, accounting for the majority of net new jobs
- Employment growth was comparatively subdued in low-medium and medium-paying jobs, linked in part at least to the secular decline in employment in the manufacturing sector
- Employment growth was relatively more robust in lower-paid jobs than in medium-paying jobs. This was associated with the expansion of less knowledge intensive service sectors (restaurants, hotels, retail, etc.) and the 'de-standardisation' of lower-paid jobs.

- A variety of quintile patterns were observed at the national level, although many conformed broadly to one of three types: polarising; upgrading; or growth in the middle.

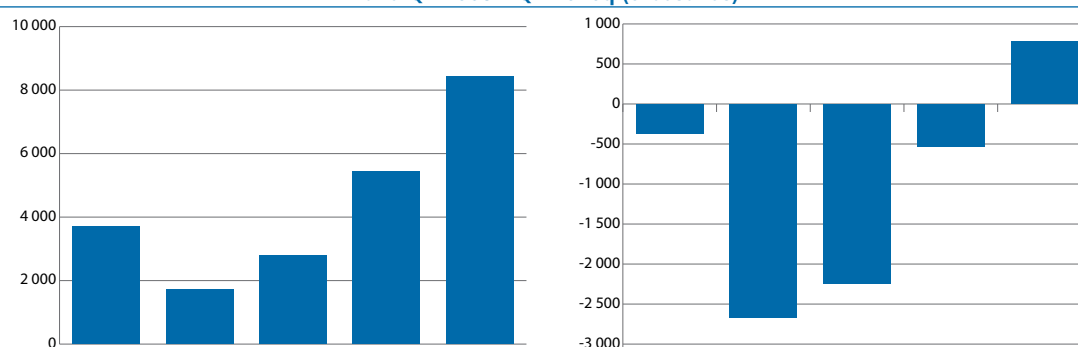
Chart 3 below sets, side-by-side, the employment shifts by job-wage quintile in the EU during the period of employment expansion up to 2007 against the same shifts during the recession. How do the two patterns compare? Apart from the obvious difference – the change from strongly positive to strongly negative employment growth – the patterns of relative employment shift by quintile are broadly similar with the decline in aggregate EU employment between 2008 quarter two and 2010 quarter two strongly concentrated in middle- and lower-middle paying jobs (Chart 3, right pane).

These were also the two quintiles recording relatively weak growth in the pre-recession employment expansion. Despite the recession, jobs in the top quintile actually increased employment by around 1 % per annum using the wage-based measure, and around 2 % per annum using the education-based measure (see Chart 5). Higher-paid and skilled jobs were much more resilient to the effects of the recession than lower-paid and (especially) lower-skilled jobs. They were

also the main beneficiaries of employment growth during the long preceding period of European employment expansion. Moreover, the relative employment shift in jobs at the lower-end of the wage spectrum was also similar to that in the preceding expansion: employment grew relative to (or declined less markedly than) medium-paying jobs, but declined relative to higher-paying jobs.

Employment change during the crisis in the EU-27 as a whole can be characterised as polarised, with some element of upgrading. Chart 3 also makes clear that the recession has 'hollowed out' the labour market by disproportionately affecting those jobs in the middle of the wage distribution. This is a common finding of previous analyses in both the US and UK using a similar methodology and applied job-wage or occupation-wage rankings (Wright and Dwyer 2003, Goos and Manning 2007) to analyse employment shifts over longer periods. In other words, employment trends are relatively positive in jobs at the top and at the bottom, and relatively negative in the middle, giving rise to an overall polarisation of the labour market as the 'middle disappears'. It is noteworthy, however, that these earlier trends should not only persist, but become amplified, during a severe downturn.

Chart 3: Changes in EU employment levels by wage quintile, 1998–2007 and Q2 2008–Q2 2010q (thousands)



**Note:** The two charts are broadly comparable in terms of the method used to generate them, but the 1998–2007 chart is based on the original EU job project's job-wage rankings, which relied on various EU data sources (2000–2002, see Stehrer and Ward, 2008 for details) using the older NACE classification (Rev. 1.1) and for only 23 Member States. Bulgaria, Poland, Malta, and Romania were not included due to unavailability of data. Inclusion of data from these countries is unlikely to have significantly altered the overall pattern observed, however, as they accounted for less than 15 % of total EU-27 working population in 2000.

**Source:** EU LFS (authors' calculations), Fernández-Macías (2010)



At the national level, Chart 4 presents net employment change between the second quarter of 2008 and the second quarter of 2010 by wage quintile for all Member States, and for the EU-27 as a whole. In virtually all country charts, employment-losing quintiles outnumber employment-gaining ones, though those countries where

the recession impacted less severely (such as Germany, Poland, and the Benelux countries) tended to have countervailing growth, especially in the highest-paid jobs. The chart illustrates the extent of the variation in the size of the impact of the recession on employment by country. The six countries that recorded peak-to-

trough employment declines of 10 % and more each have a concentration of job loss in low-skilled, but medium-paid, jobs.

These declines are attributable in large part to the plight of construction jobs in those countries where the preceding construction booms

Chart 4: Annual employment change by wage quintile, Q2 2008 to Q2 2010 (%)



Source: EU LFS (authors' calculations)

Quintiles based on national wage rankings for BE, DK, EE, EL, FR, HU, IT, LT, LU, LV, PL, PT, UK and on common EU wage ranking for all other Member States.



collapsed from 2007 onwards, with construction-led movements in the Irish and Spanish labour markets being particularly remarkable. Both countries experienced comparably frenetic employment growth in the decade preceding the crisis (Table 1). The Irish labour market almost doubled in size between 1992 and 2007, while Spain accounted for over one in three net new jobs created in the EU15 between 1995 and 2006 (Fernández-Macías and Hurley, 2008, p. 14).

Much of the growth was, however, in an overheated construction sector, and the collapse has been even more dramatic. Spain alone shed a million construction jobs between the beginning of 2008 and 2010. Employment in construction fell respectively 33% and 45% in Spain and Ireland between 2008Q2 and 2010Q2 and by even more in some of the Baltic member states. The bursting of national property bubbles has had repercussions well beyond the labour market, but it was also the single most important factor behind the decline in employment in those countries where the recession struck hardest.

When Eurofound carried out its original jobs-based analysis of EU LFS data covering the earlier period 1995–2006, three main patterns of employment growth were identified at national level: polarised growth, upgrading, and growth in the middle (as well as two further hybrid or mixed categories). Labelling different national growth patterns in this way makes sense over an 11-year period as the change can be considered as largely structural. The short timeframe of the current analysis – two years – and the fact that it is self-evidently an exceptional period of job destruction, may make a repetition of the same exercise somewhat artificial. Nonetheless, with this caveat (and others),<sup>(3)</sup> it is worth considering the

**Table 1: Patterns of employment change at national level – comparison of pre- and post-crisis periods**

Pattern of employment change	1995–2006	2008–2010
Polarisation	Cyprus, France, Hungary, Netherlands, Slovakia	Bulgaria, Cyprus, Spain, France, Greece, Ireland, Latvia, Portugal, Slovenia, UK
Hybrid polarisation/upgrading	Austria, Belgium, Germany, Slovenia, UK	Austria, Belgium, Finland, Netherlands, Poland
Upgrading	Denmark, Finland, Ireland, Luxembourg, Portugal	Germany, Luxembourg, Sweden, Slovakia
Hybrid upgrading/growing middle	Czech Republic, Spain, Italy, Sweden	
Growth in middle	Estonia, Greece, Lithuania, Latvia	
Downgrading		Denmark, Czech Republic, Hungary, Italy, Lithuania
Not classified		Estonia, Malta, Romania

Source: EU LFS (authors' calculations), Fernández-Macías and Hurley (2008)

extent to which the patterns identified earlier still apply. Our definition of employment polarisation is adjusted to reflect changed circumstances: it refers to any country where job destruction has been especially concentrated in medium-paid jobs. Table 1 summarises the pre- and post-crisis patterns of employment growth.

The first thing to observe is that the list of countries with polarising employment change has lengthened. Two original countries – Cyprus and France – have been joined by eight new Member States. The list is influenced, in particular, by employment declines in the construction sector, which tend to concentrate in middle-paying jobs. This is clearly the reason why Ireland, Spain, the UK, and two of the Baltic States appear under the 'polarised' heading in 2008–2010, but not beforehand. Indeed, the fast-growing employment in the construction sector in 1995–2006 (Fernández-Macías and Hurley 2008, p. 25) served to disguise polarisation in the overall employment structure for the earlier period in some countries. By contrast, its sharp decline in the post-crisis period has accentuated any underlying polarisation.

The number of countries in the upgrading and hybrid polarisation/upgrading categories remained roughly the same over the two periods. In these countries, employment destruction was concentrated in lower-paid jobs, while better-paid jobs experienced growth. In the recession, this was decisively the case in 'pure' upgrading countries such as Luxembourg, Germany, and Sweden, while hybrid polarisation/upgrading countries such as Austria and Belgium feature significant job loss in medium-paid jobs, little change in lowest-paid jobs, and growth at the top.

It is important to bear in mind that a country's employment structure can be categorised as 'upgrading' even as it experiences a comparatively high reduction in employment. Thus, Slovakia, for example, added employment in the top quintile but lost even more in the bottom three quintiles, and is hence classed as 'upgrading'. Poland, on the other hand, is an example of hybrid polarisation/upgrading, despite being amongst the Member States with the most resilient labour markets during the crisis and enjoying employment growth in the reference period.

The countries that displayed a more obvious upgrading pattern during the recession were Germany, Sweden, Luxembourg, and Slovakia. In Germany, growth in top-paid jobs was greatest in high-level occupations in both

(3) Four Member States were not covered in the earlier period due to unavailability of data (Bulgaria, Malta, Poland, and Romania). Also, the quintile assignments were based on national wage data for all 23 Member States for the 1995–2006 analysis. This is our preferred method.

In this review, in order to cover employment developments in all 27 Member States, we use a national ranking for 13 Member States and a common European job-wage ranking for those 14 countries where adequate wage data were not available (see Annex 2 and 3 for details).

the public sector (the category of 'other associate professionals' in public administration) and private sectors ('engineering science professionals' in computer programming and consultancy as well as machinery manufacture). Meanwhile, job losses were greatest for agricultural labourers in the bottom quintile.

In Sweden and Slovakia, the pattern at the top was not dissimilar. Engineering science professionals (in computer programming/consultancy and head offices in Sweden; in computer programming/consultancy and construction in Slovakia) as well as teaching professionals in education were the three jobs in which top-quintile growth was the strongest. The category of 'other professionals' in financial services and public administration as well as extraterritorial organisations accounted for most top quintile employment growth in Luxembourg, reflecting the specificities of its employment structure.

A new label, 'downgrading', was necessary to cover the change of sign of employment change between the two periods. No countries experienced 'growth in the middle' during the crisis period, but a number experienced a deterioration of employment structure, according to this method, with job destruction greater in higher-paid jobs, while lower-paid employment either grew or suffered only relatively small declines. There was no equivalent pattern in the period 1995–2006, as only one of 23 countries covered recorded marginally greater job growth in the bottom quintile than in the top quintile (in the Netherlands, the most obviously polarising country in the earlier period). During the recession, the group of 'downgrading' countries covers the Czech Republic, Denmark, Italy, Hungary, and Lithuania.

As a list of the top employment-gaining and losing jobs indicates, there is no obvious common explanation for this development in these five countries. Instead, the common pattern reflects the quite

diverse sectoral and occupational employment shifts that become apparent when looking beyond the quintiles to see which jobs account for the patterns.

In Italy, the largest growing job by some margin has been in low-paid household services (+150 000). Job decline in the top quintile in Italy is attributable, to a significant degree, to job losses in public administration and education, which tended to be more resilient elsewhere. Italy is also the only Member State in which all of the 'higher' white collar occupational grades (officials/legislators, managers, professionals, and associate professionals) experienced job declines. Cumulatively, these higher-level occupations accounted for just over 500 000 job losses – equivalent to net Italian employment loss over the two-year period. This is clearly a distinctive pattern compared with most other Member States, where employment losses were concentrated lower down the occupational and wage distribution.

In Denmark, four of the five largest growing jobs in the Denmark were low-paid, first quintile jobs, including retail salespersons and restaurant service workers. The biggest growth in Hungary was in lower-level public administration workers (in 'elementary occupations'). The decline in top-paid jobs in Lithuania was accounted for by construction workers and managers – specific sectoral wage inflation in some of the pre-recession boom countries having

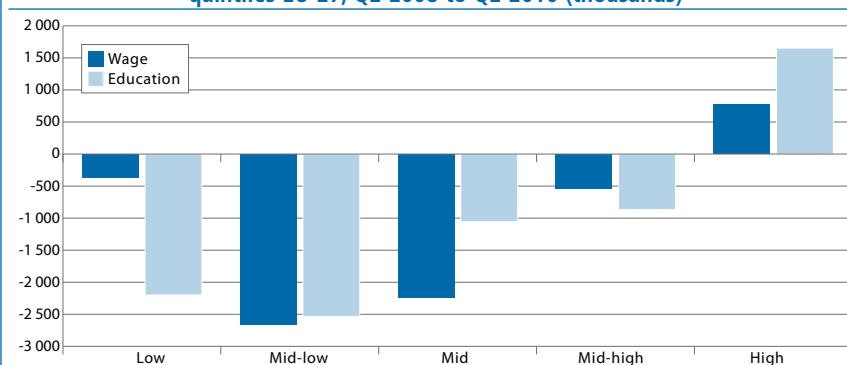
pushed construction jobs into higher quintiles than they occupy, on average, in other countries.

The picture is rather disparate, therefore, and it would be unwise to assume that these are structural trends given the short timeframe of the current analysis. Nonetheless, certain countries exhibit a deterioration of their employment structure during the recession. Overall, the patterns of employment shift are even more varied across countries than those that were presented in the original analysis covering 1995–2006 (Fernández-Macías and Hurley, 2008).

### 3.2. Comparison of employment shifts using job-wage quintiles and job-skill quintiles

One of the advantages of the jobs-based approach is that different job quality proxies can be used to generate the quintiles, and these can serve to validate or corroborate the quintile patterns generated using the job-wage rankings. One possibility is to use the average education level of the job-holders as a proxy of the skills level of the job. While educational attainment levels are more properly attributes of job-holders rather than of the jobs themselves, they nonetheless cast an interesting alternative perspective on the quality of employment shifts. There is, in any case a high correlation between

Chart 5: Employment shifts, comparing job-education quintiles and job-wage quintiles EU-27, Q2 2008 to Q2 2010 (thousands)



Source: EU LFS (authors' calculations)

job-wage and job-education rankings reflecting returns to education, differential productivity levels, etc. Hence we would generally expect the pattern of employment shifts to be similar using job-skill and job-wage quintiles.

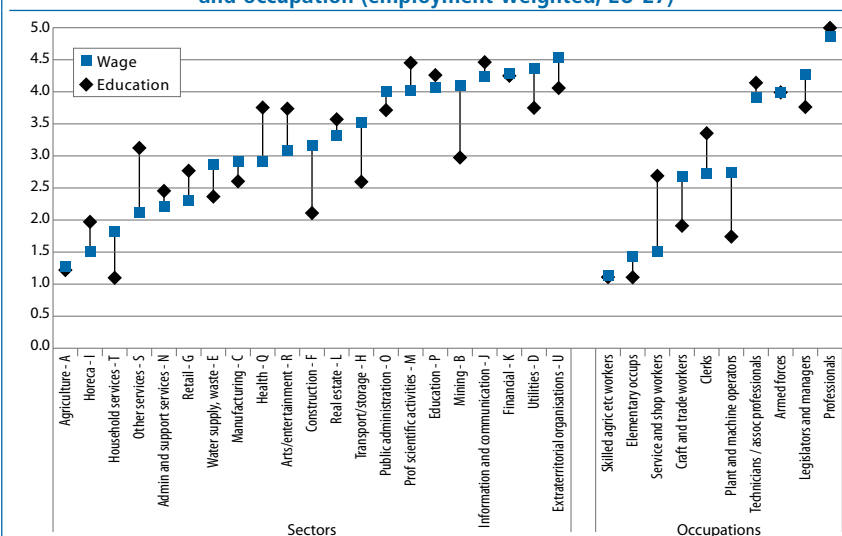
This indeed turns out to be the case for the EU-27 aggregate shifts, as Chart 5 illustrates. The broad patterns are similar. Employment grew in the top wage and education quintile, but this was the only quintile in which employment grew, with net losses across all other quintiles whether based on skill or wages. However, we can also see some noteworthy differences in the patterns of employment shift, depending on whether wages or education is used as criteria for ranking jobs.

In practice, employment shifts during the recession were more clearly upgrading using education quintiles rather than wage quintiles. This is reflected in stronger growth at the top where employment increased by approximately 2% per annum using job-education rankings, compared to 1% using wage rankings. This is consistent with earlier findings from the UK (Felstead et al., 2007), where skill-based measures of job quality point unambiguously to upgrading of the employment structure: as seen already, wage-based measures tend to paint a more shaded picture combining upgrading and polarisation.

The second principle difference is that employment declines tended to be skewed more to the low end using education quintiles, but more to the middle when using the wage quintiles. While the second quintile (low-medium paid and skilled jobs) shows a similar scale of employment decline according to both criteria, employment losses are relatively larger in the lowest education quintile, and in the middle wage quintile.

Chart 5a offers some explanation for these differences. It compares weighted averages of the education and wage quintile values across all jobs for the main sector and

**Chart 5a: Comparison of mean job-wage and job-education quintile value, by sector and occupation (employment-weighted, EU-27)**



Source: EU-LFS (author's calculations)

occupational groupings (the data is re-aggregated to the 1 digit level; presenting information at the 2 digit level is not practical). Broadly, higher paid sectors and occupations tend also to have higher education levels.

What this also shows, however, is that those low-education jobs that suffered most from employment decline during the recession – in sectors such as construction and manufacturing, and in occupations such as plant and machine operators or craft and related trades workers – tend to place higher in job-wage hierarchies than in job-education hierarchies, with the wage-education differential being particularly large in the construction sector<sup>(4)</sup>. These types of jobs tend to be closer to the medium in terms of pay, and closer to the bottom in terms of educational attainment.

Thus one significant aspect of the employment declines during the recession is their concentration in jobs where skill-wage mismatches are more pronounced, i.e. where the generally observed wage-skills correlation are weaker. This may have important ramifications in terms of

the re-employment for those losing relatively high-paid jobs in manufacturing and, in particular, in construction. Much of this employment will not reappear in the short-medium term and the education levels of those losing these jobs are, in many cases, unlikely to equip them for equivalently paid jobs in other growing sectors, generally in services.

### 3.3. Patterns of employment shift during the recession: by activity

#### Manufacturing and construction

As already indicated, the two broad sector categories that have suffered the brunt of the recession's labour market impact have been construction and manufacturing. Between the second quarter of 2008 and the second quarter of 2010, over 10% of pre-crisis employment was lost in both sectors even though employment levels in the EU in all other sectors actually increased in total over the course of the crisis.

Despite having broadly similar workforce demographics, construction and manufacturing are dissimilar in

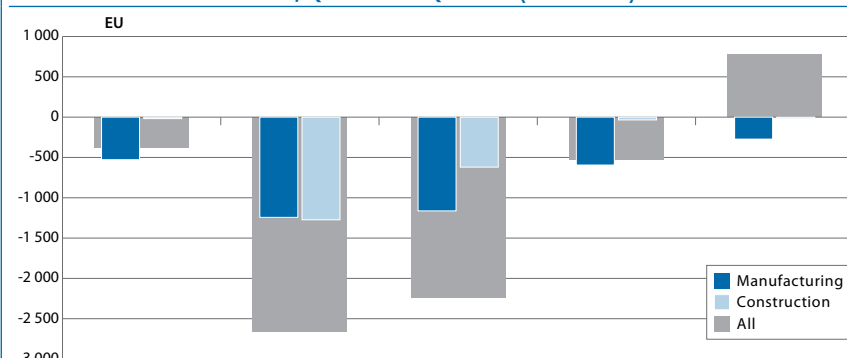
(4) However, the International Standard Classification of Education (ISCED), or years of completed full-time education, are weaker proxies of skill levels in job that are more reliant on apprenticeship and on-the-job learning.

terms of their productive logic. Construction is the most cyclical of all sectors, whereas manufacturing is the most 'structural' in that it involves substantial fixed capital investment and long time horizons to reap the benefit of these investments. On this basis, therefore, one might predict that the decline in employment during the current recession in manufacturing is likely to be more permanent than that in construction. However, there are many factors that tend to complicate this simple picture.

For one thing, the extent of the boom–bust cycles in national construction sectors during this recession make it unlikely that construction-sector employment will recover all the losses any time soon, with a large proportion of job losses in construction effectively becoming structural. Meanwhile, manufacturing employment during the recession has followed quite distinct national patterns, with large output declines being accompanied by only modest employment declines in some Member States (Germany notably) but with the reverse in other countries (such as Spain). In other words, firms appear to have hoarded labour in some countries, while in others they appear to follow the dictum of 'let no crisis go to waste', and conducted a more ruthless cutback in employment levels in order to improve productivity, etc. (Differences in response may depend on many factors – the nature of the contractual relationships, the nature of the output decline (cyclical or structural), the extent to which employment levels in the sector/firms were appropriate pre-crisis, etc.)

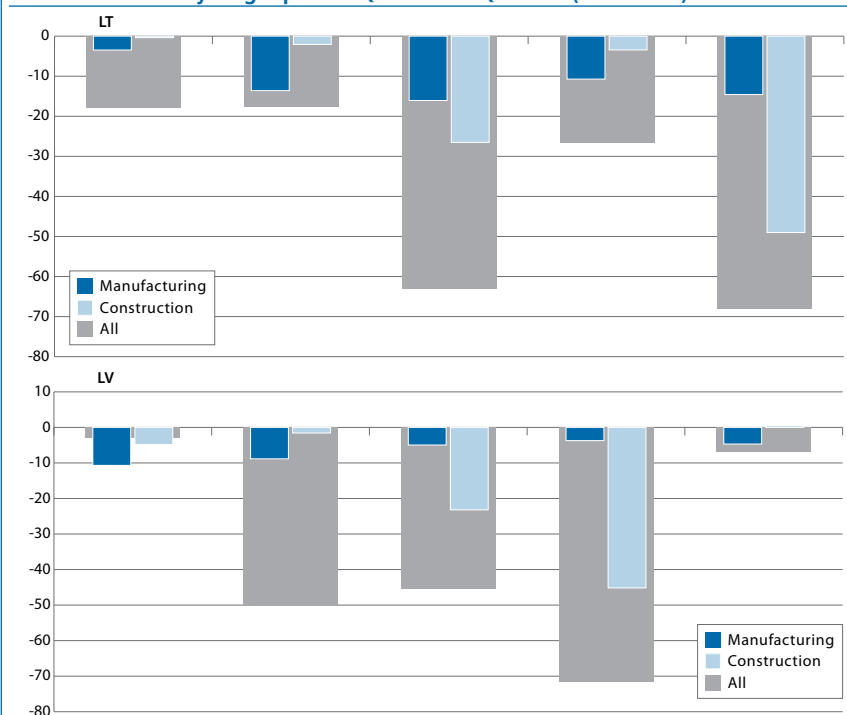
Job loss in the construction sector was heavily concentrated in medium-paid and medium-to-low paid jobs, while the manufacturing sector destroyed employment across the wage distribution, but most heavily in the same two quintiles (Chart 5). Such employment losses in manufacturing would have been even heavier had it not been for the existence of short-time working schemes in a majority of Member

Chart 6: Job loss in manufacturing and construction by wage quintile, EU-27, Q2 2008 to Q2 2010 (thousands)



Source: EU-LFS (author's calculations)

Chart 7: Job loss in manufacturing and construction in Lithuania and Latvia, by wage quintile Q2 2008 to Q2 2010 (thousands)



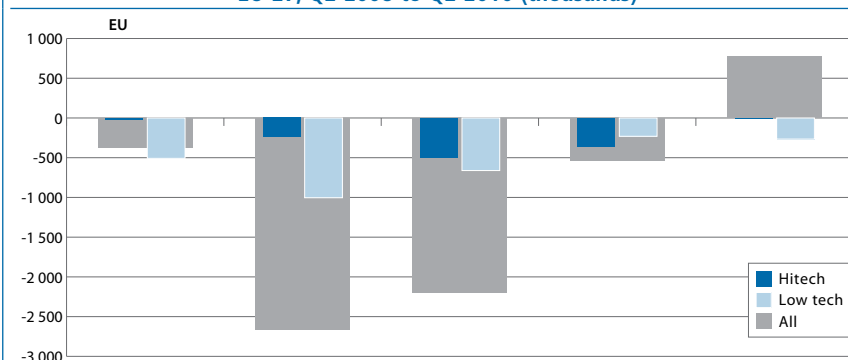
Source: EU-LFS (author's calculations)

States, as well as negotiated flexible working time agreements, which served to maintain employment – in particular during the peak crisis quarters of late 2008 and early 2009. Construction sector jobs accounted for net job destruction of over 1.9 million jobs – over 35% of the total net decline in employment.

White-collar workers were not exempt from the impact of the drop in construction sector employment, with engineers/professionals and corporate managers in the sector being among the jobs experiencing the larg-

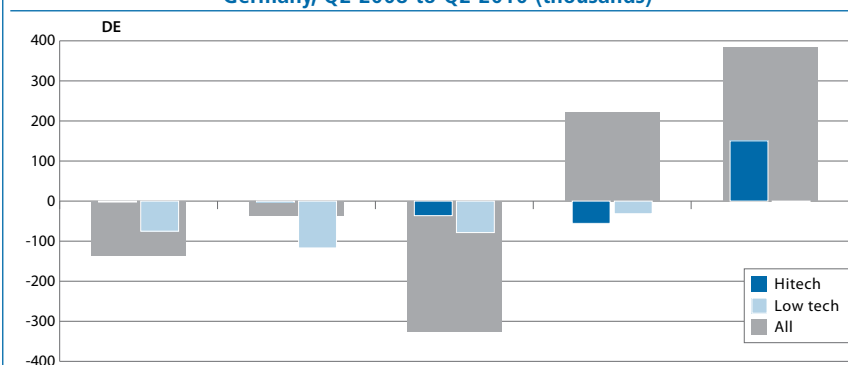
est declines. Employment fell most sharply in those Member States where the construction sector had grown, as a result of property and development booms, to account for between 11% and 13% of the workforce at the beginning of 2008 (compared with 8% in the EU as a whole). In Latvia and Lithuania, the fact that construction job losses were predominantly in the two top-paid quintiles is, in itself, a confirmation of boom-led wage inflation in the sector before the crisis (Chart 7) while the same jobs appear more frequently in middle or lower quintiles in other countries.

Chart 8: Job loss in high and low tech manufacturing by wage quintile, EU-27, Q2 2008 to Q2 2010 (thousands)



Source: EU-LFS (author's calculations)

Chart 9: Job loss/gain in high and low tech manufacturing by wage quintile, Germany, Q2 2008 to Q2 2010 (thousands)



Source: EU-LFS (author's calculations)

Manufacturing was the broad sector category that suffered the greatest employment decline in absolute terms between the second quarter of 2008 and the second quarter of 2010 (3.8 million jobs) with the bulk of the losses in low-technology manufacturing (clothing/textiles, furniture and wood products, etc.) as shown in Chart 8, and with jobs that were predominately in the low-wage quintiles. However, Bulgaria, Estonia, and Hungary stand out in this regard in that there was also quite a significant employment loss in the high-technology manufacturing sectors in jobs located in the middle job-wage quintile.

This occurred in both the more and less developed European economies, and was largely in heavy capital-intensive sectors such as fabricated metals, and cars and machinery. These sectors account for much of the considerable high-technology net job loss in the middle quintiles

(machine operators and other metal and machinery workers) in Sweden and the Czech Republic in particular, and to a lesser extent in France, Slovenia, and Slovakia.

It is striking that job loss in high-technology jobs in the middle were very limited in Germany (Chart 9) – a result which is almost certainly explained by the more extensive reduction in

average hours worked that took place in Germany compared with other countries. Indeed, Germany continued to distinguish itself as the major source of employment growth in high-technology manufacturing, with four of the top eight growing jobs in the highest quintile belonging to the occupational classification of physical, mathematical, and engineering science professionals, in various sectors.

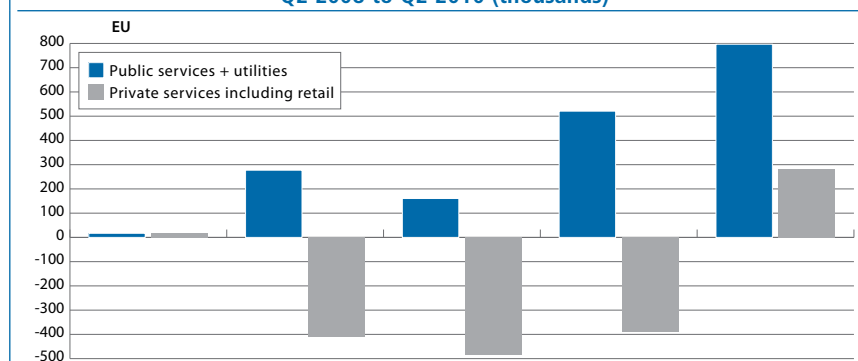
## Services

Given that over 70 % of the working population is employed in the services sector, services might be expected to have a sizeable influence on the aggregate representation of employment change during the recession. This was certainly the case in the decade preceding the crisis, when services accounted for virtually all growth at the top and the bottom of the job-wage distribution (Fernández-Macías and Hurley 2008, p. 29).

However, the recent slowdown in the growth of employment in services means that the main polarisation tendencies are, to a larger extent than before, accounted for by the collapse of middle-wage ranking jobs in manufacturing and construction.

In fact, the rapid decline in manufacturing and construction means that, even though employment growth in services has declined appreciably, the proportion of employment accounted for by services jobs continues to increase.

Chart 10: Job loss/gain in services by wage quintile, EU-27, Q2 2008 to Q2 2010 (thousands)



Source: EU-LFS (author's calculations)



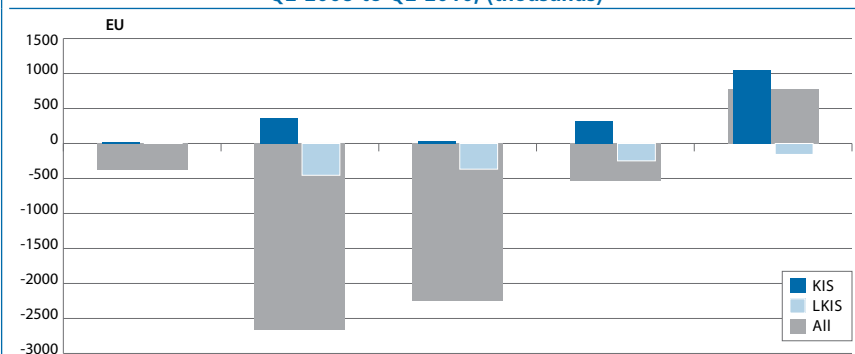
Before the recession, the large, predominantly state-funded, education and health and care sectors were important sources of employment growth and, since the recession, these have been even more significant contributors to job growth – not least in the top wage quintile. Even during the peak crisis quarters of the last quarter of 2008 and the first quarter of 2009, employment in education and health continued to grow and, over the period Q2 2008–Q2 2010, these sectors recorded net growth of approximately 3% and 5% respectively. As Chart 10 illustrates,<sup>(5)</sup> however, while employment grew across the board in the predominantly state-funded sector and with a strong bias towards higher-paid jobs, employment in private-sector services declined markedly in middle-ranking jobs.

Another way of breaking down employment change in the services sector is in terms of the ‘knowledge intensiveness’ of the sectors in which the change is taking place (in line with the Eurostat distinction between ‘knowledge intensive’ and ‘less knowledge intensive’ services).

Aside from health and education professionals, the major contributors to the jobs growth in the top quintile of knowledge-intensive services (KIS) were science professionals in computer services, consultancy, and other business services. Indeed, knowledge intensive services have remained relatively unaffected during the crisis, enjoying employment growth across all quintiles (Chart 10). They alone account for the net growth in high paid and medium-high paid jobs in the EU-27. Growth was also evident in lower-paid KIS jobs, primarily in residential care, but also in smaller expanding sectors such as gambling/betting, information services, and head offices/corporate headquarters.

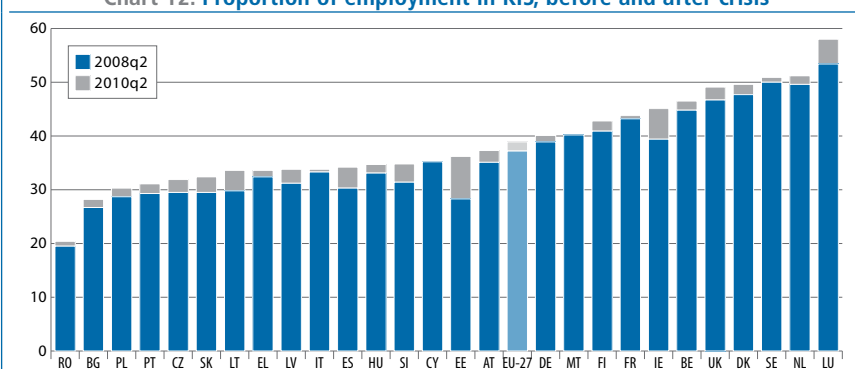
(5) Chart 10 uses the following breakdown: ‘Private services including retail’ = ‘retail’ plus ‘other private services’ (NACE Rev. 2.0, G–N, R–U); ‘Public services plus utilities’ = ‘health’, ‘education’, ‘public administration’ and ‘utilities’ (NACE Rev. 2.0, E–F, O–Q).

Chart 11: Job loss and gain in KIS and LKIS by wage quintile, EU-27, Q2 2008 to Q2 2010, (thousands)



Source: EU-LFS (author's calculations)

Chart 12: Proportion of employment in KIS, before and after crisis



Source: EU-LFS (author's calculations)

By contrast, less knowledge intensive services (LKIS) suffered employment losses across the board (Chart 11). Retail was the sector that contributed most to the declines – especially in the lower quintiles – while losses were also notable in postal services (in the second quintile, and in the concluding phase of deregulation in the EU), in warehousing (in the fourth quintile), and in transport and personal services (in the fourth quintile). There was some counterbalancing LKIS employment growth in food and beverage services, but this was not enough to offset the losses elsewhere.

Looking at individual countries, we see that KIS employment was a particularly important determinant of whether countries recorded growth or relatively mild declines in higher-paid jobs. These were generally the same type of job and sector as for the aggregate EU figure – that is, with many jobs for professionals, especially in the predominantly

state-funded sectors of health and education. A more private-sector mix of jobs was evident, however, in Belgium, France, and Poland, among others, while Hungary is something of an anomaly in that there was significant growth in low-paid public sector KIS jobs.<sup>(6)</sup>

The recession increased the proportion of employment in KIS in every Member State, but especially in those labour markets most affected by the crisis, rising by eight percentage points in Estonia, six in Ireland, and four in Spain and Lithuania.

(6) Very early on in the crisis Hungary (and Romania) increased public employment as a countercyclical measure. See ILO (2010) for details.

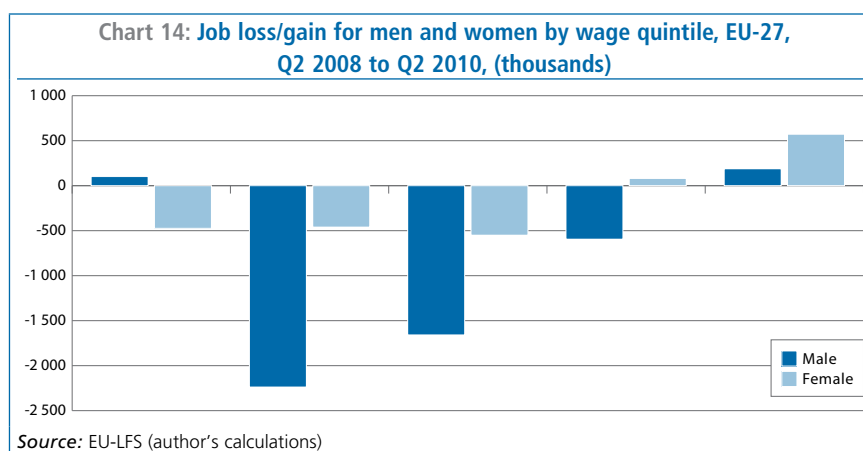
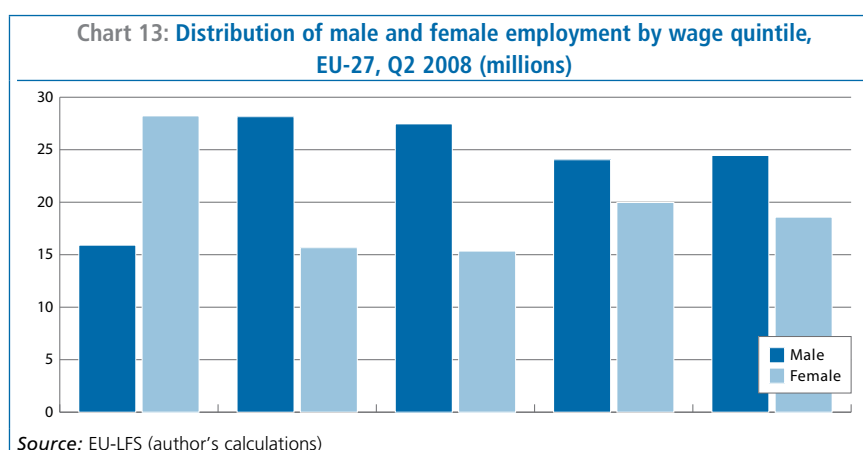
### 3.4. Patterns of employment change during the recession: by worker characteristics

The following sections show how the net employment shifts during the recession were distributed by gender, age, employment status, and other demographic variables. Specifically, employment change is broken down by quintile and by the following background variables: gender, age, country of birth, and various employment status dichotomies: full/part-time, self-employed/employee, and fixed-term/permanent. The original job-to-quintile assignments already established are maintained for each country, and the charts are used to describe, first, the starting distribution in the second quarter of 2008 and, secondly, the net shift in employment (between this quarter and the second quarter of 2010) for the main categories of the selected background variable across the quintiles in each country.

#### Gender

During the decade prior to the crisis, the gender employment gap continued to close, with growth in female employment being greater than growth in male employment in both relative and absolute terms. The recession has accelerated this convergence, however, because of the greater impact of the crisis on sectors that are male dominated. Thus the gender employment gap – 45 to 55 in 2007 – has narrowed a further percentage point. In the more extreme cases, such as all three Baltic States, men went from outnumbering women in employment before the crisis to being outnumbered by women in the wake of the crisis. Here again the culprit was construction and, to a lesser extent, manufacturing.

Throughout the EU, men accounted for over 80% of the net decline in employment between 2008 and 2010,



and this tended to be overwhelming in middle-paid and lower-middle paid jobs. How does this compare to the pre-crisis period? From 1995 to 2006, growth was more or less equally skewed towards higher-paid jobs for both men and women. However, there was some evidence at that time of greater polarisation for women than men, with comparatively higher growth in female employment in the lower quintiles (Fernández-Macías and Hurley, 2008, pp. 41–43; see also Grimshaw and Figueiredo, 2011). Overall, however, the main observation was that growth in female employment was greater in every job quintile: for example, three out of every five new highly paid white-collar jobs went to women.

Notwithstanding convergences in the gender distribution of work in recent decades and the higher proportion of newer well-paid jobs going to women, the distribution of men and women across the job-wage quintiles was still quite uneven at the outset

of the crisis. As Chart 13 illustrates, women outnumbered men by almost two-to-one in lowest-quintile jobs, while there were many more men in low-medium and medium quintile jobs. The differences in higher-paid jobs were less marked.

Female employment has had a comparatively soft landing during the crisis, both in qualitative and quantitative terms. Almost all the employment growth in the top quintile in the EU-27 has gone to women (Chart 14). This has resulted largely from the continued expansion of professional-grade jobs in the health and education sectors. Meanwhile, net female job losses have been exclusively in middle- and low-paid jobs, with highest employment losses for females in four bottom quintile jobs including retail salespersons, blue-collar workers in textiles/clothing manufacture, and in agriculture. In fact, a clear contrast is visible between the patterns of employment decline for men and women, with an upgrading pattern

evident for women and a stark polarisation pattern for men – a partial reverse of the patterns observed during the pre-crisis period.

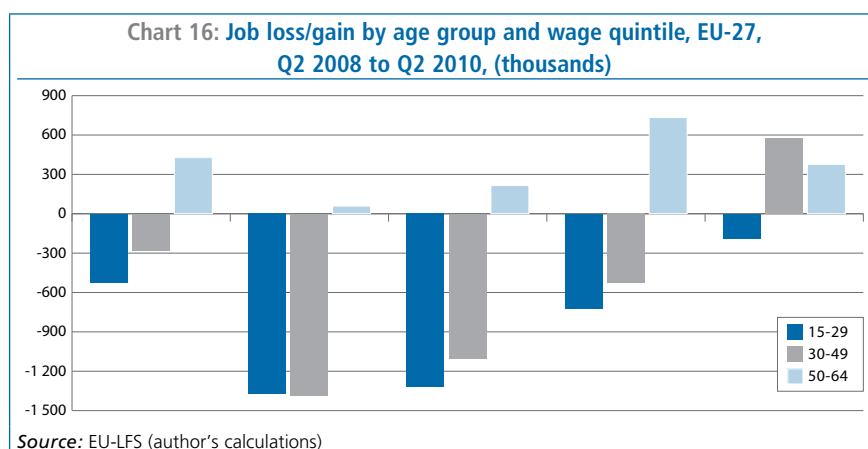
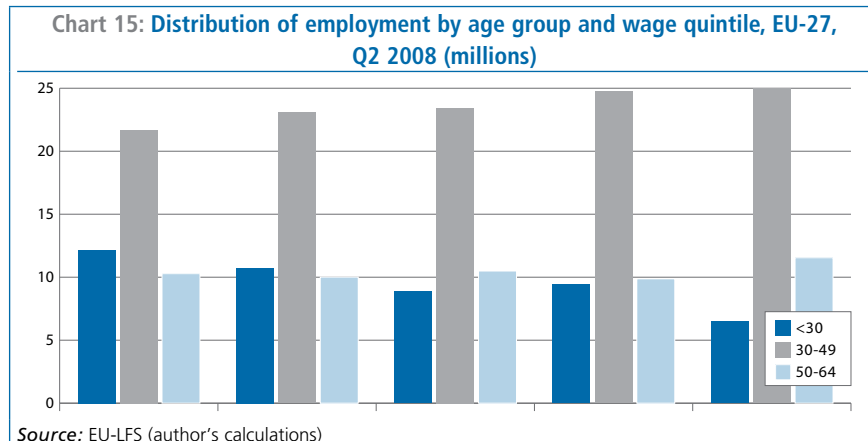
The upgrading of female employment during the recession can be observed in particular in the western European 'older' Member States, including Austria, Belgium, Finland, Germany, Luxembourg, the Netherlands, and Sweden (as well as those Member States that suffered busts in construction). Each of these countries more or less reflects the overall EU gender contrast, with polarised job loss for men, and bottom-skewed job loss for women. In terms of sectoral employment shifts, the explanations for top quintile growth are in most cases the well-rehearsed ones, namely faster female employment growth in health and education skewed towards higher-paid occupations (professionals and associate professionals).

### Age

Recessions always tend to hit younger workers especially hard. Limited experience and opportunity to acquire workplace skills mean that their labour market attachment is generally more tenuous than that of older workers, being more likely to be in non-permanent work, and more vulnerable to formal and informal applications of 'last-in, first-out' type redundancy policies.

The distribution of younger workers across job quintiles reflects some of the disadvantages they face. In the second quarter of 2008, younger workers were twice as likely to be employed in the lowest-paid jobs as in the highest-paid jobs (Chart 15). By contrast, older workers were more evenly distributed across quintiles, with a small bias towards higher-paid jobs.

Compounding any inherent labour market disadvantages, recessions lead to a sharp fall-off in recruitment and this tends to impact disproportionately on younger applicants. By definition, all first-time job applicants are out of work but they



tend, on average, to remain so for much longer periods both during and after recessions, with well-documented 'scarring' effects on their future employability and earnings (Bell and Blanchflower, 2010).

Before the crisis, youth unemployment rates had been declining in the EU, falling from around 18% in 2000 to 15% by 2008, before rising to around 21% at present (data from Eurostat). This is more than double the rates for those the working age population (15–64 years of age) as a whole, with especially high rates in countries such as Spain (where nearly half of persons aged 15–24 are unemployed) as well as Greece and Slovakia.

As we see in Chart 16, employment loss has affected both younger and core-age workers (those aged between 30 and 49 years) mainly in middle-ranked and lower-middle ranked jobs. These categories of workers account for all the net job loss in the EU between the second quarter of 2008 and the second quarter of 2010. Given that the chart

characterises absolute employment change, and that those aged under 30 years account for a much lower share of overall employment than core-age workers, their relative share of overall employment loss is much higher. Younger workers also suffered job losses across all quintiles and did not share in any of the net employment gain in the highest-paid jobs.

Perhaps the most striking feature of all is that employment of older people has proved comparatively impervious to the recession, enjoying growth across all cohorts.<sup>(7)</sup> Net employment

(7) An important qualification is that, because the charts breaking employment change down by age group are cross-sectional, and break employment into age groups and job quintiles in two separate periods (Q2 2008 and Q2 2010), they include important cohort shifts as well as net employment loss/gain for each age group. The growth of the older worker category is augmented by the greater inflow of 48–49 year-olds than the outflow of 63–64 year olds, for example. The decline of the younger age group also appears in starker relief for similar cohort reasons, though the effect in this case is the opposite.

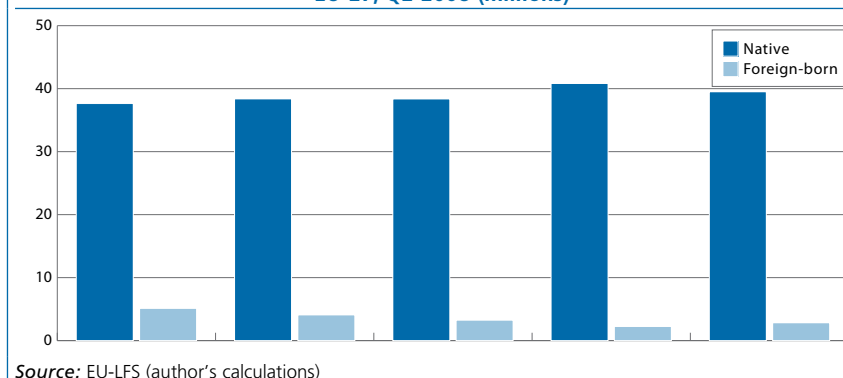


growth for the older age category in the EU was skewed towards higher-paying jobs, with professional and associate professional jobs accounting for over half of the total net gains of 1.8 million jobs (compared to net losses respectively of over 4 million jobs in the under-30 age category, and of 2.7 million in the core-age category). But there were also gains in lower-paid jobs for older workers – for example, 240 000 new jobs in elementary occupations, where there was a notable job loss for the young and core-age groups (a combined loss of 950 000 jobs).

Overall, there were net employment gains for older workers in 53 of the 88 NACE Rev. 2.0 two-digit sectors, compared with 36 for core-age workers (between 30 and 49 years) and 22 for younger workers (those aged under 30). In the health sector, all net employment growth was enjoyed by older workers, while growth in education and residential care activities was more equally shared between older and core age workers. The sectors in which employment growth was greater for core-age workers than for older workers tended to be private services (management consultancy, civil engineering, other professional, scientific and technical activities at the higher end, and food and beverages and buildings services at the lower end). Those in which older workers benefited most from employment growth tended to be in public services (health, education, and social work activities).

The less severe the scale of the recession in national labour markets, the more likely that employment growth in top-paid jobs was shared across the age cohorts. This was the case in Austria, Belgium, Germany, the Netherlands, and Poland, though only in the latter did employment growth for younger and core-age workers outstrip that of older workers. On the other hand, the employment destruction in the Member States that experienced deeper adjustments – such as the Baltic States, Bulgaria, and the Czech Republic – did not spare older workers.

Chart 17: Distribution of employment by country of birth and wage quintile, EU-27, Q2 2008 (millions)



In summary, the recession impacted especially unfavourably on the employment levels of younger workers in the EU, while the employment of older workers increased across the board but with a skew towards higher-paid jobs. The consequence of this, of course, is that the age profile of the EU workforce grew older, while that of the growing ranks of the unemployed grew younger.

### Foreign-born workers

One of the paradoxes of the cross-border movements of workers in Europe is that internal mobility remains comparatively weak, despite freedom of movement being one of the core legal rights of EU citizens. Around 3.4% of EU-born workers work in a Member State other than that of their birth. The proportion of non-EU workers in the EU-27 is twice as high (over 6.6% of the total in 2008)<sup>(8)</sup> as

that of foreign EU nationals despite greater, and in some cases growing, legal obstacles to their incorporation into the labour force.

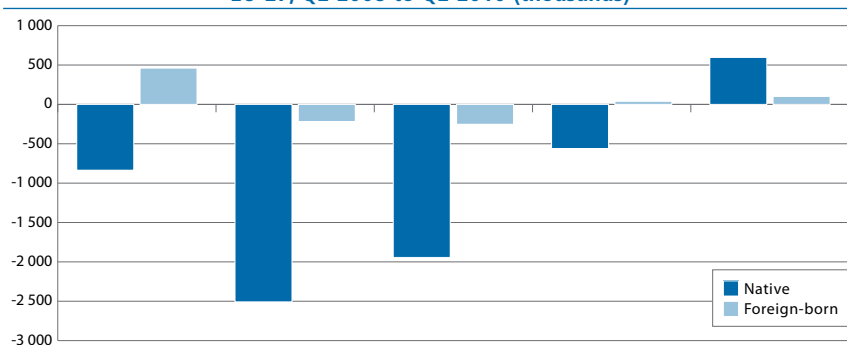
During the crisis, however, this gap tended to diminish as the numbers of workers born outside the EU workers declined and those of foreign workers born in the EU increased. Again, the absolute figures are relatively marginal so this can be only considered as limited evidence of an increase in internal EU labour mobility at the expense of third-country immigration. It is, in any case, a preliminary estimate given that it relies on quarterly EU LFS data rather than the more definitive annual data.

Overall, and excluding countries where the level of change was marginal, four countries reported a decline in foreign-born worker levels, and 14 countries reported a gain. The foreign-born working population declined most over the period in Ireland (where it fell by 105 000) and Spain (a fall of 372 000). Meanwhile, the foreign-born working population rose most in Italy (by 405 000 persons), in the UK (136 000 workers), and in Sweden. Employment gains for foreign-born workers took place mainly in low-paid jobs while declines were concentrated in medium-paid jobs, often in construction or manufacturing.

(8) Some caution is required regarding indicated estimates of the proportion of foreign-born workers in the EU workforce due to partial data on the country of birth question from Germany, where all non native-born workers were coded as 'non-response'. It does not make much sense to calculate an EU aggregate employment shifts in foreign-born/native-born employment without accounting for the sizeable foreign-born population in the EU's most populous country; hence the pragmatic solution used is to reclassify 80% of the total German non-response figure as foreign-born workers (this equates to around 4.1 million persons, a conservative estimate given that the German foreign-born workforce was already estimated at 4.15 million in 2000). This total is then assigned to two exclusive categories, foreign EU nationals and non-EU nationals, in proportion to their known

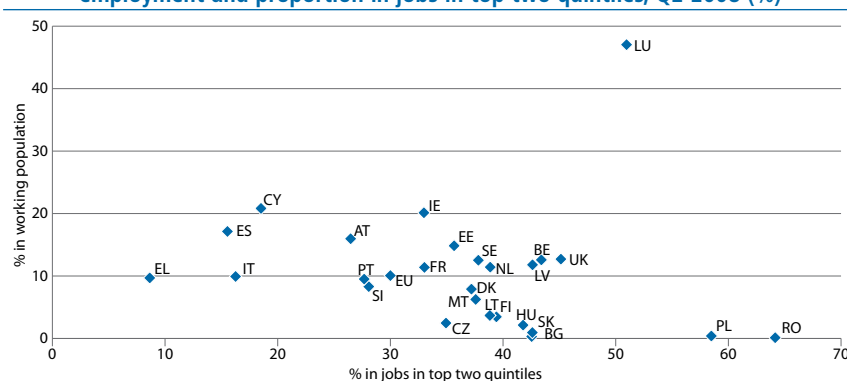
ratio in the German non-citizen working population (the ratio being 42:58).

**Chart 18: Job loss/gain for native and foreign born workers, by wage quintile, EU-27, Q2 2008 to Q2 2010 (thousands)**



Source: EU-LFS (author's calculations)

**Chart 19: Pre-crisis foreign-born working population in EU-27 – proportion of total employment and proportion in jobs in top two quintiles, Q2 2008 (%)**



Source: EU-LFS (author's calculations)

The marked growth of employment for foreign-born workers in the bottom quintile was seen in several Member States – Austria, Belgium, Cyprus, Greece, Italy, Sweden, UK – and occurred in conjunction with a sharp decline in native employment in the same quintile (in all countries except the UK). This suggests a replacement of native by foreign-born employment. The jobs principally affected were in lower-level services jobs in household and personal services, retail, food and beverages, and agriculture.

Foreign-born workers are more likely to work in jobs in the lower quintiles than in the higher quintiles. Across the EU, there were nearly twice as many foreign-born workers in the lower two quintiles compared to the top two quintiles. The proportion of foreign-born workers in lower-paid jobs is especially high in the southern Member

States (Chart 19). Conversely, their proportion in highly paid jobs is very high in newer Member States such as Poland and Romania, even though absolute levels of foreign workers remain very low in these countries. This may be related to the placement of foreign-born professional staff in faster growing post-accession countries.

The countries in which employment grew more or less across the quintiles for foreign-born workers were Belgium, Cyprus, Italy, and Sweden – even if, in all cases, the growth was skewed towards lower quintiles. With German data unavailable, it is not possible to verify whether immigration policies favouring the entry of skilled foreign workers have been successful there in raising the educational/wage profile of new foreign-born labour market entrants. However, foreign-born employment in the higher quintiles has grown in the EU, if not spec-

tacularly. While being substantial in a knowledge-intensive services economy such as Luxembourg, it has been much lower overall than has foreign-born employment in bottom-quintile jobs.

### 3.5. Patterns of employment change during the recession: by employment status

Self-employment and work on part-time and temporary contracts has become increasingly common in European labour markets in recent decades. However, in the years preceding the recession, these EU-wide trends were halted or even reversed. Of course, the EU average figures (both growth rates and levels) include significant variation between Member States, with some being strongly identified with one form or other of non-standard work – for example, Spain with fixed-term work and the Netherlands with part-time work. In the central and eastern European Member States (CEE), levels of part-time and fixed-term employment remain comparatively low, while higher rates of self-employment are in large part related to higher shares of agricultural employment.

The consequences of the recession have been mixed as regards employment status. On the one hand, part-time employment has increased quite sharply (and this is not solely due to the increased employment of women relative to men) and some of the replacement of full-time by part-time work may be another manifestation of labour hoarding and possibly temporary in nature rather than permanent. On the other hand, the proportion of fixed-term employment fell – especially in the 2008–2009 phase of the recession – as the non-renewal of fixed-term contracts was often the path of least resistance for employers when dismissals were considered inevitable.

### Part-time work

Despite the growth of part-time work, it still tends to be more prevalent among lower-paid jobs (partly as a result of part-time/full-time pay differentials). This is reflected in the distribution of part-time workers which before the crisis in the second quarter of 2008 included a disproportionate share of lowest quintile employment (Chart 20).

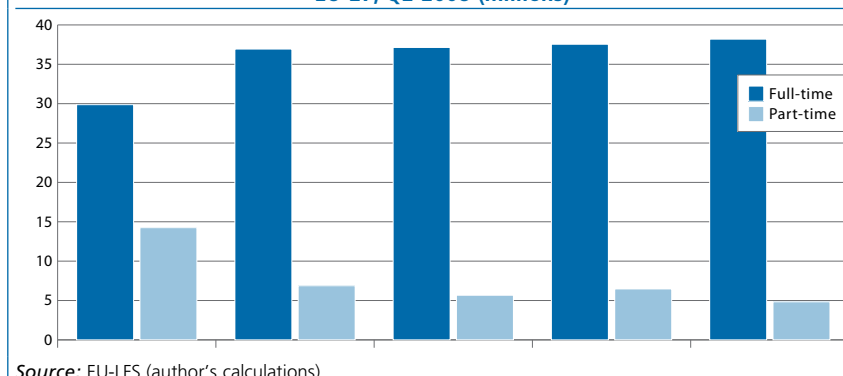
Part-time employment grew in all five quintiles between the second quarter of 2008 and the second quarter of 2010 (Chart 21), but in a polarised way with gains more evident in low-paid jobs and in highly paid jobs, and only marginal growth in the middle. In the earlier Eurofound analysis of the 1995–2006 employment expansion in Europe, part-time growth had been similarly distributed, with the only difference being a more distinct skewing towards low-paid employment.

One other major difference emerges, however, when we break down part-time growth by gender. Of the 1.2 million new part-time jobs created, as many were male as were female, despite more than 80 % of the existing part-time jobs being held by females. New male part-time employment has been created primarily in lower quintile jobs in agriculture, food and beverages, and in building and landscape services, while over two-thirds of female part-time employment growth was in higher-paid jobs – in education, health, and professional services.<sup>(9)</sup> In other words, the polarisation of part-time employment took place along two axes – gender and pay.

Part-time employment grew across the quintiles in Austria, Belgium, Hungary, the Czech Republic, and Slovenia. In the latter three CEE countries, this growth comes from a very low base (5 % or less of total employment).

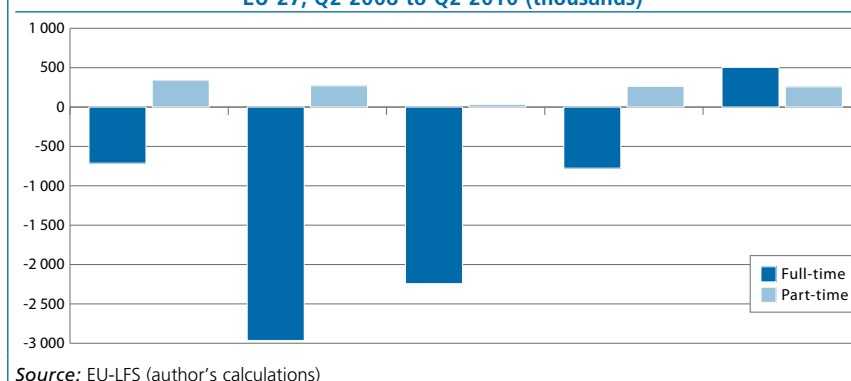
(9) A caveat here is that the job may be a well-paid job from the jobs project perspective – that is, characterised by high mean hourly pay across all workers in the job – but may be less well-paid and attractive in its part-time form.

Chart 20: Distribution of full-and part-time employment by wage quintile, EU-27, Q2 2008 (millions)



Source: EU-LFS (author's calculations)

Chart 21: Loss and gain of full-/part-time jobs by wage quintile, EU-27, Q2 2008 to Q2 2010 (thousands)



Source: EU-LFS (author's calculations)

In Estonia and Ireland, sharp falls in full-time employment were matched by modest gains for part-time employment, again across jobs at all levels of pay. For some of the larger Member States, including Italy, France, and the UK, part-time growth was strongest in low-paid employment, but with some countervailing growth in well-paid jobs in France and the UK. Only in Sweden was part-time employment destroyed to any significant extent – and nearly all of the loss was in the two lowest quintiles (mainly residential care and social work and, to a lesser extent, some retail jobs).

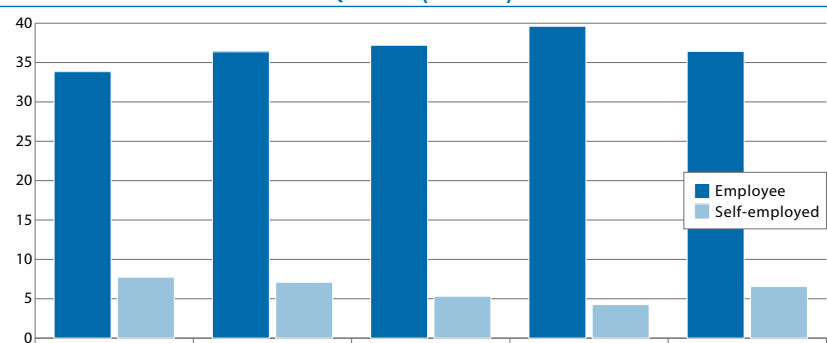
### Self-employment

During the 1995–2006 employment expansion, over two million net new self-employed jobs were created. The profile of this growth was monotonically top-skewed at aggregate EU level (for the 23 Member States covered) with over half the total growth in self-employment taking place in top-quintile jobs (primarily in

the professions), while job destruction took place in lower-paid jobs (primarily in agriculture). Despite these developments, those in self-employment at the outset of the recession were more likely to be in lower paying jobs. The polarised distribution in Chart 22 is nonetheless indicative of the heterogeneity of self-employment, with large numbers of predominantly self-employed agricultural workers in lower quintiles, and self-employed professionals and owner/managers in the top quintiles.

During the recession, the levels of self-employment in the EU declined by around 1 %, relatively less than the labour market as a whole. The types of jobs affected tended to be somewhat different from those in the preceding expansion: for example, agricultural self-employment declined, but not dramatically so. They tended also to vary from country to country and, as a result, the pattern of change by quintile lends itself less easily to interpretation.

**Chart 22: Distribution of (self-) employment by wage quintile, EU-27, Q2 2008 (millions)**



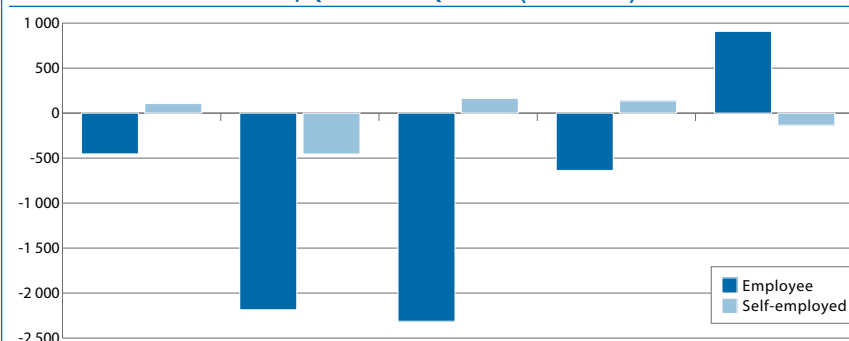
Source: EU-LFS (author's calculations)

relative to overall employment, indicating a shift away from permanent to temporary work although, as mentioned, much of this shift occurred in earlier, rather than more recent, years.

As with other forms of non-standard or atypical work, the distribution of jobs in the second quarter of 2008 was skewed towards lower-paid jobs, though – as already noted in the case of part-time work – pay differentials favouring permanent workers tend to push jobs with a high proportion of temporary workers into the lower quintiles.

During the recession, fixed-term employment was one of the first forms of employment to suffer and fell especially sharply in (lower) medium-paid jobs. Modest gains were registered in top and bottom quintiles (indicating polarised growth).

**Chart 23: Job loss and gain of employees and self-employed, by wage quintile, EU-27, Q2 2008 to Q2 2010 (thousands)**



Source: EU-LFS (author's calculations)

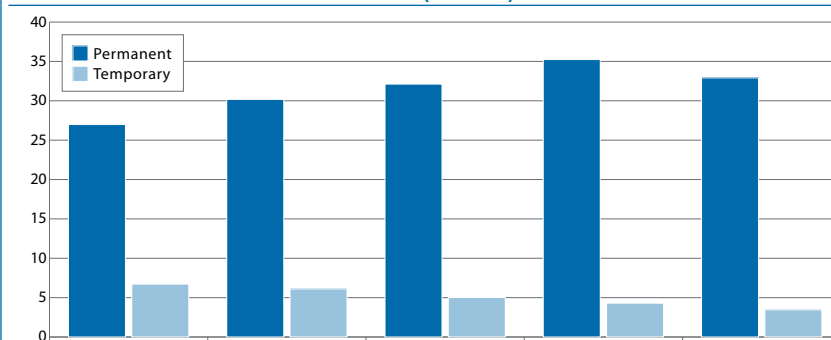
Self-employed job losses were greatest in medium-low paid jobs – mainly in construction and to a lesser extent in manufacturing. The other quintiles showed relatively small gains and losses.

The effect of the crisis on self-employment has been un-dramatic at the EU level, but there have been notable rises in some Member States – France, Slovakia, and the Czech Republic – skewed sharply to lower-paid jobs in the latter, and combined with a fall-off of dependent employment in the same quintiles. Job losses in self-employment have been relatively greatest in Portugal as well as in those countries that experienced booms and subsequent busts in construction (the Baltic States, Ireland, and Spain).

### **Employment on fixed-term contracts**

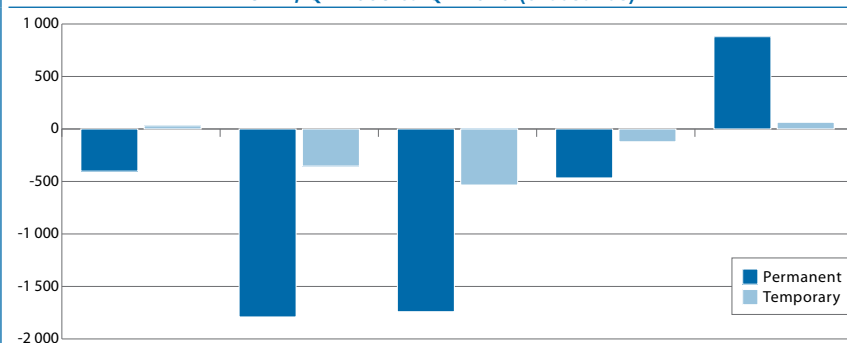
Employment on fixed-term contracts grew more or less evenly across the quintiles in the pre-crisis period from 1995 onwards. It also grew faster

**Chart 24: Distribution of employment by contract type and wage quintile, EU-27 (millions)**



Source: EU-LFS (author's calculations)

**Chart 25: Job loss and gain by contract type and wage quintile, EU-27, Q2 2008 to Q2 2010 (thousands)**



Source: EU-LFS (author's calculations)

Much of the net decline of fixed-term employment was the result of developments in two sectors (manufacturing and construction) and in one country (Spain). If Spain is excluded, fixed-term employment added nearly 250 000 jobs across the EU during the crisis. The share of fixed-term employment in total employment in Spain fell from 34 % to 25 % between 2006 and 2009.

The time profile of employment changes for fixed-term employment indicates both its sensitivity to the business cycle and its acute vulnerability during the early phase of the recession. Between the second quarter of 2008 and the second quarter of 2009, fixed-term employment declined by 1.7 million jobs, before registering gains of around half this amount in the following 12 months with a net creation of 850 000 fixed-term jobs between the second quarter of 2009 and the second quarter of 2010.<sup>(10)</sup> Employer caution in recruiting permanent staff has led to an increase in temporary hiring and, since the third quarter of 2009, the majority of workers in the EU who have been in their jobs for less than 12 months are working on fixed-term rather than permanent contracts.

## 4. CONCLUSIONS

This review describes the shifting structure of the European labour market over the course of the recession. The basic unit used to describe this structural change is a job, defined as an occupation in a sector. It is argued that a jobs-based approach is useful from both a conceptual and policy perspective. Average wages are used to assign a qualitative dimension to the jobs, while average education level offers a complementary ranking criterion.

Some of the most useful empirical conclusions are to be drawn by comparing the results of the EU-wide shifts between 2008 and 2010 with the patterns of job expansion between 1998 and 2007. Up until the recession, the EU experienced strong overall employment growth, but with appreciably higher growth in the top (fifth) wage quintile, followed by the fourth quintile. However, there was also an appreciable growth in the bottom quintile, with only limited employment growth in the second and third quintiles. This pattern was characterised as 'upgrading' with some 'polarisation'. Thus, compared to the strong job growth in the US a decade earlier, growth in the EU was somewhat less polarised, with the top jobs showing more growth than the jobs at the bottom.

It is also to be noted that while the period between 2008 and 2010 was one of rapid employment contraction, it exhibits a similar pattern to that of the preceding decade in terms of the distribution of employment shifts across the wage structure, but with an acceleration of the previous trends.

During the preceding decade of job growth, the polarisation tendency was accounted for largely by the growth of services jobs at the two ends of the wage distribution. However, it is the massive job loss in manufacturing and construction – and the ensuing collapse of the middle-ranking jobs – that has driven the increased polarisation through the recession.

While some of the fall in manufacturing employment in the middle quintile is in high-technology sectors (in France, Slovakia, Slovenia, and Sweden, for example), most of the employment decline in manufacturing in the middle quintile is in low-technology manufacturing such as food processing and textiles. Construction is the other sector accounting for job loss in the middle. Just as the construction boom supported the middle-ranking quintiles in the preceding decade, the collapse of

construction in many counties accentuates the decline of the middle, compared with the long-term trend. The decrease in manufacturing is less likely to be cyclical, though the continued significant growth in high-technology manufacturing in Germany (mostly in the well-paid top quintile) is also very striking.

The persistence of overall job growth in the top quintile during the recession (while not occurring in all Member States) is striking. Even in Ireland and Spain, two of the countries experiencing some of the greatest decline in employment, the number of jobs in the top quintile increased. As in the preceding decade, though, job growth in the top was due mainly to an increase in knowledge intensive services (KIS). These include both public services (mainly in education and health) and private services (business services). Since the recession, the relative importance of public services for top quintile growth has increased.

Growth in top-paid jobs was also overwhelmingly in KIS, while the decline in numbers in the lowest-paid jobs was comparatively modest. Other factors contributing to declining employment in the middle of the job-wage distribution include the polarised distribution of employment change for part-time and temporary work. In addition, shifts in the gender composition of the labour force have been polarising with women under-represented in the middle of the job-wage distribution and men, who suffered the greater employment losses, over-represented.

Perhaps the most important long-run factor behind the 'disappearing middle' is the polarisation of services sector employment, with employment being generated at the top and the bottom of the employment structure, but comparatively little in middle-ranking jobs. Hence services cannot be relied upon to fill the gap created by the decline in manufacturing. Moreover, this is one of the polarising forces in the labour market whose

(10) The quarter-to-quarter movements are even more abrupt, though some of this is due to seasonality. A large concentration of the decline in temporary employment took place in the six-month period between the third quarter of 2008 and the first quarter of 2009 and amounted to over three million net job losses.



importance is likely to continue to grow and become one of many factors likely to engender greater wage inequality. It also has the potential to increasingly segregate employment into low-quality and high-quality 'blocs', thereby limiting the career mobility possibilities for those in lower-end employment and exacerbating problems of job-skills mismatch and over-qualification.

Women had benefitted most from employment growth during the preceding decade, and also fared better than men during the recession given that the employment lost in construction and manufacturing was largely male-dominated. By contrast, the few sources of (generally high quality) employment growth were in female-dominated jobs in health and education. Overall four 'male' jobs were lost for every one 'female' job during the crisis, though the sharply gendered distribution of losses at the beginning has tended to give way to a more equal pattern of loss in the later stages of the recession and during the initial recovery. Overall, the employment shifts show a strongly 'polarised' development for men but an 'upgrading' pattern for women.

The recession has also seen changes in the age profile of the European workforce, with one of the most striking features being the significant increase in employment among those aged between 50 and 64 years. Moreover, the employment data reveal that, while the employment

of older workers has increased in all wage quintiles, it was mainly located at either end, but particularly at the top. Younger workers, on the other hand, were the most exposed to the effects of the crisis and their numbers declined in all quintiles.

The picture in terms of employment status is mixed. Most of the net fall in temporary employment in the EU is attributable to developments in the Spanish construction sector. Excluding Spain, temporary work grew over the recession period and has grown especially rapidly since 2009. Part-time work has also expanded in all quintiles with the greatest growth in the top and bottom quintiles but, unusually, with the growth in the number of part-time jobs being equally distributed among men and women. New part-time employment for men has been created primarily in lower-quintile jobs in agriculture, food and beverages, and in building and landscape services, however, while over two-thirds of the growth in female part-time employment was in higher-paid jobs in education, health, and professional services.

There has been some reduction in the levels of foreign-born workers employed in the EU-27. Again, however, this has been heavily influenced by developments in the construction sector, which tends to have a mobile workforce and where booming pre-crisis demand in some Member States encouraged an increase in the proportion of foreign-born workers.

If we look beyond those countries where construction sector declines were the dominant vector of labour market change, we can see high levels of growth of employment of non-native workers in Belgium, Cyprus, Italy, and Sweden, with such growth more likely to be in lower paid jobs, notably so in Italy.

There is much to suggest that further changes in both the quantity and quality of jobs are imminent. Some of these changes appear somewhat more predictable than others. For example, some Member State governments have announced their intention to significantly restructure the public sector while market prospects for many private-sector developments remain uncertain, with the ultimate employment impact depending also on adjustment lags following on from the recession. In such a situation, the jobs methodology provides useful timely information on the possible nature of changes in the job structure across the EU.

The recession has already changed somewhat the pattern of job growth compared with the decade before – from one of 'upgrading' with 'some polarisation' to 'stronger polarisation' and 'some upgrading'. As most of the growth at the top of the income structure was attributable to public-sector jobs, any impending restructuring of public sector employment would presumably lead to even more downgrading, raising concerns about the strength of the recovery in the private sector.

## ANNEX 1: EMPLOYMENT CHANGE IN EU-27 2008–2010

Table A1: Jobs with the largest employment decline, Q2 2008 to Q2 2010

ISCO (2-digit)	Occupation	NACE (2-digit)	Sector	Quintiles		Employment levels and decline (thousands)			
				Wage	Education	2008 q2	2010 q2	Decline	Decline (%)
71	Extraction and building trades workers	43	Specialised construction activities	2	2	6 365	5 518	-847	-13.3
71	Extraction and building trades workers	41	Construction of buildings	3	1	3 252	2 920	-332	-10.2
93	Labourers in mining, construction, manufacturing, and transport	43	Specialised construction activities	2	1	521	272	-250	-47.8
93	Labourers in mining, construction, manufacturing and transport	41	Construction of buildings	2	1	804	631	-172	-21.4
82	Machine operators and assemblers	25	Manufacture of fabricated metal products, except machinery and equipment	2	2	607	439	-169	-27.8
12	Corporate managers	43	Specialised construction activities	5	4	394	234	-161	-40.8
52	Models, salespersons, and demonstrators	47	Retail trade, except of motor vehicles and motorcycles	1	3	8 617	8 466	-151	-1.8
72	Metal, machinery, and related trades workers	25	Manufacture of fabricated metal products, except machinery and equipment	3	2	1 658	1 517	-141	-8.5
74	Other craft and related trades workers	14	Manufacture of wearing apparel	1	1	752	639	-114	-15.1
21	Physical, mathematical and engineering science professionals	43	Specialised construction activities	5	5	309	197	-112	-36.2
74	Other craft and related trades workers	31	Manufacture of furniture	2	2	663	552	-111	-16.8
71	Extraction and building trades workers	42	Civil engineering	3	1	500	399	-101	-20.2
41	Office clerks	69	Legal and accounting activities	3	4	944	845	-98	-10.4
42	Customer services clerks	64	Financial service activities, except insurance and pension funding	4	4	720	622	-98	-13.6
82	Machine operators and assemblers	14	Manufacture of wearing apparel	1	1	421	323	-98	-23.2
51	Personal and protective services workers	86	Human health activities	2	3	2 486	2 388	-98	-3.9
61	Market-oriented skilled agricultural and fishery workers	46	Wholesale trade, except of motor vehicles and motorcycles	1	1	119	23	-96	-80.9
83	Drivers and mobile-plant operators	52	Warehousing and support activities for transportation	3	2	635	540	-95	-14.9
41	Office clerks	43	Specialised construction activities	3	3	558	471	-87	-15.7
41	Office clerks	47	Retail trade, except of motor vehicles and motorcycles	3	3	1 051	968	-84	-8.0

Source: EU LFS (author's calculations)

Table A2: Jobs with the largest employment gain, Q2 2008 to Q2 2010

ISCO (2-digit)	Occupation	NACE (2-digit)	Sector	Quintiles		Employment levels and gain (thousands)			
				Wage	Education	Q2 2008	Q2 2010	Gain	Gain (%)
51	Personal and protective services workers	87	Residential care activities	2	3	1 582	1 868	287	18.1
23	Teaching professionals	85	Education	5	5	8 176	8 397	221	2.7
32	Life science and health associate professionals	86	Human health activities	4	5	3 974	4 187	213	5.4
22	Life science and health professionals	86	Human health activities	5	5	2 626	2 789	163	6.2
21	Physical, mathematical, and engineering science professionals	62	Computer programming, consultancy, and related activities	5	5	1 020	1 166	146	14.3
92	Agricultural, fishery, and related labourers	1	Crop and animal production, hunting, and related service activities	1	1	1 229	1 360	131	10.7
24	Other professionals	84	Public administration and defence; compulsory social security	5	5	1 961	2 090	129	6.6
33	Teaching associate professionals	85	Education	4	4	1 681	1 806	125	7.5
51	Personal and protective services workers	85	Education	2	3	1 235	1 347	112	9.1
24	Other professionals	88	Social work activities without accommodation	4	5	319	429	110	34.5
91	Sales and services elementary occupations	81	Services to buildings and landscape activities	1	1	1 981	2 089	109	5.5
91	Sales and services elementary occupations	97	Activities of households as employers of domestic personnel	2	1	1 829	1 937	108	5.9
51	Personal and protective services workers	56	Food and beverage service activities	1	2	4 397	4 503	107	2.4
72	Metal, machinery and related trades workers	33	Repair and installation of machinery and equipment	4	2	435	537	101	23.3
34	Other associate professionals	66	Activities auxiliary to financial services and insurance activities	4	4	511	611	100	19.5
34	Other associate professionals	87	Residential care activities	3	4	481	579	98	20.3
41	Office clerks	86	Human health activities	3	3	793	891	97	12.3
12	Corporate managers	70	Activities of head offices; management consultancy activities	5	5	150	248	97	64.8
21	Physical, mathematical, and engineering science professionals	35	Electricity, gas, steam, and air conditioning supply	5	5	150	226	76	50.4
93	Labourers in mining, construction, manufacturing, and transport	42	Civil engineering	2	1	178	252	74	41.8

Source: EU LFS (author's calculations)

Table A3: Employment shifts in jobs with greatest employment, Q2 2008 to Q2 2010

ISCO (2-digit)	Occupation	NACE (2-digit)	Sector	Quintiles		Employment levels and change (thousands)			
				Wage	Education	Q2 2008	Q2 2010	Change	Change (%)
52	Models, salespersons, and demonstrators	47	Retail trade, except of motor vehicles and motorcycles	1	3	8 617	8 466	-151	-1.8
23	Teaching professionals	85	Education	5	5	8 176	8 397	+221	+2.7
61	Market-oriented skilled agricultural and fishery workers	1	Crop and animal production, hunting and related service activities	1	1	6 795	6 825	+30	+0.4
71	Extraction and building trades workers	43	Specialised construction activities	2	2	6 365	5 518	-847	-13.3
51	Personal and protective services workers	56	Food and beverage service activities	1	2	4 397	4 503	+107	+2.4
32	Life science and health associate professionals	86	Human health activities	4	5	3 974	4 187	+213	+5.4
83	Drivers and mobile-plant operators	49	Land transport and transport via pipelines	3	2	3 834	3 776	-57	-1.5



ISCO (2-digit)	Occupation	NACE (2-digit)	Sector	Quintiles		Employment levels and change (thousands)			
				Wage	Education	Q2 2008	Q2 2010	Change	Change (%)
34	Other associate professionals	84	Public administration and defence; compulsory social security	4	4	2 991	2 926	-64	-2.1
71	Extraction and building trades workers	41	Construction of buildings	3	1	3 252	2 920	-332	-10.2
22	Life science and health professionals	86	Human health activities	5	5	2 626	2 789	163	+6.2
41	Office clerks	84	Public administration and defence; compulsory social security	3	4	2 591	2 545	-46	-1.8
51	Personal and protective services workers	86	Human health activities	2	3	2 486	2 388	-98	-3.9
13	General managers	47	Retail trade, except of motor vehicles and motorcycles	3	2	2 369	2 308	-61	-2.6
24	Other professionals	84	Public administration and defence; compulsory social security	5	5	1 961	2 090	+129	+6.6
91	Sales and services elementary occupations	81	Services to buildings and landscape activities	1	1	1 981	2 089	+109	+5.5
51	Personal and protective services workers	84	Public administration and defence; compulsory social security	4	3	2 051	2 061	+10	+0.5
91	Sales and services elementary occupations	97	Activities of households as employers of domestic personnel	2	1	1 829	1 937	+108	+5.9
51	Personal and protective services workers	87	Residential care activities	2	3	1 582	1 868	+287	+18.1
51	Personal and protective services workers	88	Social work activities without accommodation	1	2	1 850	1 851	0	0.0
51	Personal and protective services workers	96	Other personal service activities	1	3	1 817	1 842	+25	+1.4
72	Metal, machinery, and related trades workers	46	Wholesale and retail trade and repair of motor vehicles and motorcycles	2	2	1 825	1 814	-11	-0.6
33	Teaching associate professionals	85	Education	4	4	1 681	1 806	+125	+7.5
34	Other associate professionals	46	Wholesale trade, except of motor vehicles and motorcycles	4	4	1 767	1 719	-48	-2.7
72	Metal, machinery, and related trades workers	25	Manufacture of fabricated metal products, except machinery and equipment	3	2	1 658	1 517	-141	-8.5
34	Other associate professionals	47	Retail trade, except of motor vehicles and motorcycles	4	3	1 431	1 446	+15	+1.0
24	Other professionals	69	Legal and accounting activities	5	5	1 386	1 389	+3	+0.2
92	Agricultural, fishery, and related labourers	1	Crop and animal production, hunting and related service activities	1	1	1 229	1 360	+131	+10.7
51	Personal and protective services workers	85	Education	2	3	1 235	1 347	+112	+9.1
1	Armed forces	84	Public administration and defence; compulsory social security	5	3	1 344	1 339	-5	-0.4
41	Office clerks	46	Wholesale trade, except of motor vehicles and motorcycles	3	3	1 318	1 237	-81	-6.1
91	Sales and services elementary occupations	85	Education	1	1	1 239	1 188	-51	-4.1
21	Physical, mathematical, and engineering science professionals	62	Computer programming, consultancy, and related activities	5	5	1 020	1 166	+146	+14.3
21	Physical, mathematical, and engineering science professionals	71	Architectural and engineering activities; technical testing and analysis	5	5	1 147	1 158	+11	+1.0
74	Other craft and related trades workers	10	Manufacture of food products	1	1	1 136	1 075	-61	-5.4
13	General managers	56	Food and beverage service activities	2	1	1 095	1 061	-34	-3.1
91	Sales and services elementary occupations	84	Public administration and defence; compulsory social security	2	1	1 054	1 043	-11	-1.0
42	Customer services clerks	47	Retail trade, except of motor vehicles and motorcycles	1	2	1 053	1 033	-20	-1.9
41	Office clerks	64	Financial service activities, except insurance and pension funding	4	4	1 020	995	-25	-2.5
41	Office clerks	47	Retail trade, except of motor vehicles and motorcycles	2	3	1 051	968	-84	-8.0
72	Metal, machinery and related trades workers	28	Manufacture of machinery and equipment n.e.c.	3	3	982	920	-62	-6.3

Source: EU LFS (author's calculations)

## ANNEX 2: CONSTRUCTION OF JOB-WAGE RANKINGS

To generate country job-wage rankings, we use wage data from an extraction from the 2008 annual EU LFS datafile provided by Eurostat. This extraction contains aggregated data, not microdata, and contains wage data for only a limited number of Member States at present. The countries for which we have used the wage data are Belgium, Estonia, France, Greece, Hungary, Italy, Latvia, Luxembourg, Lithuania, Poland, Portugal, and the UK. Independently, we have used Danish national data based on company-level administrative registers from organisations that employing at least 10 people. This data is generally recognised as being of very good quality.

The EU LFS 2008 annual data extraction includes weighted population estimates for all available combinations of the following variables: *occupation* (ISCO 2-digit), *sector* (NACE 2-digit), *avrgewusual* (average weekly working hours for holders of a specific job in a specific country), and *avrgincmon* (average net take home monthly work income for holders of a specific job in a specific country). We generate an estimate of mean net hourly wage per job using the following formula (mean net hourly wage =  $\text{avrgincmon} / (4 * \text{avrgewusual})$ ). This is used to generate an ordinal job-wage ranking in each of the 13 countries for which we have wage data.

In these countries, the job-wage rankings are used to assign jobs to quintiles in each country based on data (from the EU LFS) on employment levels in the second quarter of 2008 by job for that country. This assigns a quintile value of 1 to those jobs that contain the lowest-paid 20% of employment and a quintile value of 5 to those that contain the highest-paid 20% of

employment. In other words, jobs are assigned to quintiles in each Member State based on the job-wage ranking, using employment as a weight.

As we have data for only 13 Member States, we are faced with the issue of how to include the other 14 Member States in our analysis. We have opted to use the existing data from these 13 Member States to generate a common EU job-wage ranking, which we then apply to those countries for which we have no wage data, as well as to the EU-27 overall. This solution is of course not ideal but allows us to cover employment developments in all Member States, the main point of this comparative exercise. In its defence, we can point to the high correlation of existing national job-wage rankings (Table A4, Annex 3); the same jobs tend to be ranked similarly from country to country. We conducted the process according to the following steps.

1. We generate a min-max standardised version of each national job-wage ranking that we have already generated for the 13 Member States with the highest-paid job scoring close to 1 and the lowest-paid job scoring 0, based on the formula  $(X_i - X_{\min}) / (X_{\max} - X_{\min})$ , where  $X_i$  is the rank order of job  $i$  in a specific country,  $X_{\min}$  is the rank order of the lowest-paid job (= 1) and  $X_{\max}$  is the rank order of the highest-paid job (= total number of jobs) identified in the Member State.
2. We calculate the weighted mean of the resulting 13 scores for each job (NACE x ISCO combination) using the working population of the country as a weight. Why use weighting? The countries for which we have wage data include a combination of smaller and larger Member States. On the assumption that larger samples generate more robust job wage estimates, especially given the detailed breakdown required by the jobs approach, we elected

to weight the EU mean standardised score by country employment totals (for 2008). The effect of this is to give substantial weight to France, the UK, Italy, and Poland, the four largest countries of the 13 in the overall EU standardised score. Arguably, this group of four countries is not in any case an unrepresentative EU sub-sample as it runs along both an 'old'-'new' Member State axis and a north-south axis. Our European job-wage ranking is simply a ranking of these weighted mean scores (on a scale of 0–1) for each job identified.

3. In the 14 Member States where we have no wage data, we use our European job-wage ranking to assign jobs to quintiles in each country based on data (from the EU LFS) on employment levels in the second quarter of 2008 by job for that country. We also use this common EU job-wage ranking to generate job-wage quintiles at EU aggregate level. As before, this assigns a quintile value of 1 to those jobs that contain the lowest-paid 20% of employment and a quintile value of 5 to those that contain the highest-paid 20% of employment. In other words, jobs are assigned to quintiles in each Member State based on the job-wage ranking using employment as a weight.

One practical advantage of the EU job-wage standardised score is that it covers more jobs (as always, occupation \* sector combinations) allowing us to compensate for limited coverage of the national rankings generated from the 2008 annual EU LFS data. If jobs are not ranked – for instance, because there were no wage observations for an individual job in a country in the EU LFS 2008 annual data – they cannot be assigned to quintiles, and employment changes in them will have to be disregarded. To avoid this, we take advantage of the EU standardised scores to 'fill in the gaps' of the national rankings for the 14

Member States. We do this by interpolating the EU standardised scores in the national standardised scores where we have no wage data for a particular job in the national data. It should be pointed out that this interpolation applies only to a very small proportion of employment in each country where we already have national wage rankings so it has little impact on the overall results or quintile charts.

As already noted, assignment of jobs to quintiles does not always lead to a smooth share of 20% of employment per quintile. Some jobs are 'lumpy', accounting for a large share of employment in a given country. The job of skilled agricultural workers in agriculture accounts for fully 20% of Romanian employment. It is, however, only in this country that such lumpy jobs distort unreasonably the initial allocation of employment

to quintiles. In all other countries, the allocation is reasonably even.

The charts themselves record the net employment change (or flows) at quintile level in each country between the second quarter of 2008 and the second quarter of 2010. Separately, for some background variables, we have included an indication of the EU-27 distributions of employment across the quintiles (stocks).

## ANNEX 3: NOTES ON THE JOB-WAGE RANKINGS

It is difficult to be conclusive regarding some of the data issues relating to wages. Availability of wage data in the EU LFS is a very recent development and, to our knowledge, they have yet to be used in any research. However, it should be noted that we use not the wage itself but a wage ranking and that these rankings are then further aggregated into five big groups or quintiles ranked in terms of average wage level. The allocation of all national employment from between 400 and 2 000+ national job 'cells' (see Table A6) into five quintiles of equal employment size implies limited demands on the wage data and, as the country quintile charts and breakdowns demonstrate, they generate generally very plausible results.

One of the reasons for the robustness of the jobs approach is that it includes some inherent self-correcting mechanisms. At our level of detail, any within-quintile error in the ranking would have no impact on the results. Erroneous wage data is only a problem when a job is allocated to the wrong

quintile. Such misallocations are much more likely to occur when there are few observations in a particular NACE/ISCO cell in the EU LFS, but by definition these small jobs will tend to have much smaller impacts in terms of shifts in employment levels than the bigger jobs. Ultimately, the most important determinant of the shape of the quintile chart in each country is the shifts in levels of employment in larger-employing jobs and, for these jobs, wage estimates are based on many observations and are likely to be more reliable and accurate.

While comprehensive national wage data are of course preferable, it should also be pointed out that there are some practical advantages to using an EU ranking over national rankings. Above all, the EU ranking benefits from having appreciably more observations than national rankings. Particularly in small jobs in small countries, the EU ranking provides a higher level of statistical confidence for the wage estimates of the population mean of the NACE/ISCO cell. The EU standardised ranking also tends to 'smooth out' outlier national job-wage rankings that may be attributable to statistical artefacts arising from small numbers of observations.

There are many things the jobs approach can do to cast a light on developments in terms of employment structure, but – as with most methods – there are also things that it cannot do. Firstly, the fact that it is relative and highly aggregated means that it cannot reflect the scale of the inequalities that exist in terms of wages between jobs in the different countries. This is a subject of growing importance, but it is one about which the jobs approach cannot say much as it does not cover changing wage distances or relativities between jobs. What it does is provide relevant data on the related issue of the distribution of employment shifts across the wage structure. Secondly, it should be stressed that the jobs approach can say nothing about changes in the quality of a given job. Whether or not individual jobs are becoming relatively better paid or reflecting a higher level of education is of course an interesting question but is beyond the scope of this review. The wage measures are fixed in 2008. What the development of the quintiles show is how the changing quantity of employment in the following two years is allocated among the fixed, pre-defined ranking of jobs by wages. Our main focus is on the employment structure, not on the wage structure. Thirdly, we use job-wage rankings and quintile assignments that are fixed in time (in the second quarter of 2008). While relative job-wage hierarchies are reasonably robust over time, they do change and so using a fixed ranking does imply some degree of oversimplification (even if this is probably only a very minor issue for the short two-year period we cover in this review).

**Table A4: number of job (ISCO 2-digit x NACE 2-digit) combinations wage-ranked by country**

LU	EE	DK	EL	LV	PT	LT	PL	BE	HU	UK	FR	IT	EU-27
413	773	871	964	982	1 005	1 073	1 084	1 161	1 172	1 262	1 268	1 639	2 041

Source: EU LFS (authors' calculations)

**Table A5: Pairwise correlations of country job-wage rankings (weighted by employment in job)**

	BE	DK	EE	FR	EL	HU	IT	LT	LU	LV	PL	PT	UK
BE	1.00												
DK	0.78	1.00											
EE	0.51	0.70	1.00										
FR	0.79	0.86	0.61	1.00									
EL	0.78	0.74	0.52	0.76	1.00								
HU	0.72	0.81	0.67	0.74	0.70	1.00							
IT	0.85	0.84	0.55	0.85	0.86	0.76	1.00						
LT	0.56	0.69	0.73	0.64	0.59	0.68	0.58	1.00					
LU	0.82	0.77	0.43	0.81	0.84	0.68	0.88	0.50	1.00				
LV	0.58	0.71	0.69	0.64	0.57	0.69	0.61	0.66	0.56	1.00			
PL	0.70	0.79	0.67	0.75	0.72	0.77	0.76	0.65	0.68	0.68	1.00		
PT	0.82	0.80	0.59	0.82	0.83	0.76	0.88	0.61	0.83	0.63	0.76	1.00	
UK	0.78	0.87	0.65	0.85	0.75	0.78	0.83	0.69	0.81	0.68	0.76	0.80	1.00

Source: EU LFS (authors' calculations)

## ANNEX 4: JOB- EDUCATION RANKINGS

To generate country job-skill/education rankings, we used educational level attainment data from the EU LFS quarterly data, from Q2 2008q1 to Q2 2010. This data is available for all Member States. Using pooled data across all 10 quarters we estimated the average years of completed education for each job in each country based on the following conversion table. Thereafter, we followed a similar method to that outlined above for wages when calculating an overall EU job-skill/education ranking and quintile assignment:

**Table A6: Mapping of ISCED levels of attainment with years of full-time education**

Variable: <i>hatlevel</i> (ISCED educational attainment levels 0–6)*	Description (completed level of education)	Equivalent years of completed full-time education
0–1	Primary education	6
2	Lower secondary	10
3	Upper secondary	13
4	Post-secondary, non-tertiary	14
5	Tertiary, first stage (degree)	17
6	Tertiary, advanced (PhD)	21

\* International Standard Classification of Education (ISCED)

As we are interested only in ranking jobs *within* each country, the fact that duration may vary for the same educational level from country to country need not concern us. We are only interested in the within-country relative positions of jobs based on average years of completed educa-

tion. The job education/skill rankings are then used to assign jobs to quintiles in each country based on EU LFS data on employment levels (from the second quarter of 2008) by job for that country. We generate the EU education quintiles based on the aggregated EU-27 data.

## ANNEX 5: DEFINING HIGH AND LOW TECH MANUFACTURING AND KNOWLEDGE INTENSIVE SERVICES

Sector (NACE rev. 2.0 two-digit) breakdowns used for high- and low-tech manufacturing and knowledge-intensive services (KIS) and less knowledge-intensive services (LKIS) (for reference, see document on the Eurostat web site: [epp.eurostat.ec.europa.eu/cache/ITY\\_SDDS/Annexes/htec\\_esms\\_an3.pdf](http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an3.pdf))

### Manufacturing

#### *High- and medium-high technology (= high tech manufacturing)*

Manufacture of chemicals (20); basic pharmaceutical products (21); computer, electronic and optical products (26); electrical equipment, machinery, auto, transport equipment, etc. (27 to 30).

#### *Low- and medium-low technology (=low tech manufacturing)*

Manufacture of food products, beverages, tobacco products, textiles, wearing apparel, leather and related

products, wood and of products of wood, paper and paper products, printing and reproduction of recorded media (10 to 18); coke and refined petroleum products (19), rubber and plastic products, other non-metallic mineral products, basic metals, fabricated metal products, except machinery and equipment (22 to 25); Repair and installation of machinery and equipment (33); furniture and other manufacturing (31 and 32).

### Services

#### *KIS*

Water transport, Air transport (50, 51), Publishing activities, Motion picture, video and television programme production, sound recording and music publishing activities, Programming and broadcasting activities, Telecommunications, Computer programming, consultancy and related activities, Information service activities (58 to 63); Financial and insurance activities (64 thru 66), Legal and accounting activities, Activities of head offices; management consultancy activities, Architectural and engineering activities; technical testing and analysis, Scientific research and development, Advertising and market research, Other professional, scientific and technical activities,

Veterinary activities (69 to 75); Employment activities (78); Security and investigation activities (80); Public administration and defence, compulsory social security, Education, Human health and social work activities, Arts, entertainment and recreation (84 to 93).

#### *LKIS*

Wholesale and retail trade; repair of motor vehicles and motorcycles (45 thru 47); Land transport and transport via pipelines (49); Warehousing and support activities for transportation, Postal and courier activities (52, 53); Accommodation and food service activities (55, 56); Real estate activities (68); Rental and leasing activities (77);

Travel agency, tour operator reservation service and related activities (79); Services to buildings and landscape activities (81); Office administrative, office support and other business support activities (82); Activities of membership organisations, Repair of computers and personal and household goods, Other personal service activities (94 to 96); Activities of households as employers of domestic personnel; Undifferentiated goods- and services-producing activities of private households for own use, Activities of extraterritorial organisations and bodies (97 to 99).



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# Are our societies working fairly? Recent changes in income inequality

## 1. INTRODUCTION

The economic crisis has put inequalities high on the political agenda, and made this an issue of serious public concern. (Box 1). It is recognised that inequalities are a fact of life and unavoidable and that while they have increased in many countries, some countries have managed to reduce them, and there has been an overall decline in inequalities between countries since 1990.

There is an increasing recognition that social policy can reduce inequality and poverty while simultaneously improving the economic functioning of the country as reflected in the idea of inclusive growth in the EU's Europe 2020 strategy, with references to "a high-employment economy delivering economic, social, and territorial cohesion" in which "benefits of growth and jobs are widely shared".

This review summarises current income inequalities in the EU and supports the goal of inclusive growth. It is part of a research agenda that will also cover both the social and economic impact of inequalities and the impact of different policies on those inequalities.

Some inequality is inevitable. Inequality can be both the result and originator of better individual

and social performance. To some extent they reflect productivity, the value added created for society, and this is inherently unequal. The possibility of doing better in terms of living standards can create a good performance incentive, while in the extreme case if all the possible gains are taken and redistributed, one would only voluntarily make an extra effort. In the end, policies aimed at reducing inequalities may also lead to welfare losses. (Okun, 1975).

However, the importance of these factors are often overstated. Pay differences reflect many factors beyond productivity differences – for example, belonging to a certain occupation. (Kampelmann, 2011) Also, disadvantages seem sticky, there is a low wage mobility among the low wage earners and higher wage mobility among the higher wage earners. Differences in wealth are much greater than differences in income (see Box 4), and much less related to individual performance. In the end, even if differences are inevitable, the question is, whether the currently observable big differences are justified and socially desirable – whether there is a performance difference of a million times.

There are a number of reasons why a high level of inequalities, or rapidly

increasing inequalities, may be detrimental both economically and socially.

### *Compromising the sense of fairness, stirring unrest*

In almost all societies, people have a basic sense of fairness and hence care about the distribution of economic resources across individuals in their society. They care about their relative position in society, and their actions are guided by the perceived fairness of distribution, i.e. whether they consider they receive a fair share. In the light of these concerns, all advanced economies have set in place redistributive policies and transfers programmes, often applying progressive taxation that effectively redistributes significant shares of National Product across income groups. On the other hand, increased inequalities can cause rifts in society that undermine cohesion and trust, which are the cornerstones of society, and may even lead to civil unrest.

### *Wasting human capital, economic potential*

There is a growing acceptance that equality could actually foster growth through better use of human capital, wider opportunities among the more disadvantaged, and fewer negative spill-over effects of inequality on the society at large (Asplund 2004; Korpi 1985, 2005).

### *Potential threat to democracy*

Differences in income translate in different potential of influencing others and for making changes in society. If the incomes or wealth of a part of the population are much higher than that of the rest, this implies a concentration of purchasing power, which may translate into a concentration of power. Even if the eventual danger is not so much democracy's sudden replacement by autocracy, there can be a gradual decline in democracy's quality. (Karl, 2000)

### *Potential source of economic crisis*

A number of economists have argued that there is a causal link between increasing inequality and the financial crisis - although opposite opinions also exist – and this is an area of analysis and policy where many different types of social scientists meet, and often collide.

One potential channel is psychological: the lavish consumption and glamorous lifestyle of the rich shifts the reference point up on the status scale. The middle classes struggle to maintain their status and social recognition by emulating the luxurious lifestyle of the wealthy. In order to try to make up for through consumption what they have lost in status, they get into debt. (Frank et al. 2010)

Another channel is macroeconomic, directly connected to the first. As Kumhof and Rancière (2010) frame it: 'the key mechanism, reflected in a rapid growth in the size of the financial sector, is the recycling of part of the additional income gained by high income households back to the rest of the population by way of loans, thereby allowing the latter to sustain consumption levels, at least for a while. But without the prospect of a recovery in the incomes of poor and middle income households over a reasonable time horizon, the inevitable result is that loans keep growing, and therefore so does leverage and the probability of a major crisis.' Indeed, Kumhof and Rancière found an association between inequality and indebtedness.

While in the US and some EU countries private indebtedness may have filled the demand gap, in other EU countries it may have been government spending – which also resulted in financial vulnerability. As Fitoussi and Saraceno (2009, 4) conclude "although the crisis may have emerged in the financial sector, its roots are much deeper and lie in a structural change in income distribution that had been going on for twenty-five years".

Clearly, inequalities, and different type of inequalities, are matters where it is unwise to jump to conclusions, which is one of the basic reasons for the current analysis.

### *Structure of the chapter*

This chapter concentrates on income inequality, which is a crucial form of inequality. Having a lower income than others, relative deprivation in the space of incomes, can yield absolute deprivation in the space of capabilities (Sen, 1995). Indeed, income inequality is highly connected to inequality of health, opportunity, and wealth – and this is a major reason why we care about it. These other aspects of inequality are not studied here – or to a very limited extent, like wealth inequalities, but are undoubtedly important and will be part of our future research.

The chapter that follows starts with a discussion of some basic measures of income inequality, before moving on to explore recent changes in income inequality, and to address the principal causes of these developments.

The next part of the chapter addresses the redistributive impact of the tax-and-benefit systems in the EU Member States: asking how have taxes, social transfers, and in-kind benefits been able to mitigate the growing inequality of market incomes? In this the interplay between the different drivers of inequalities, including the policy changes in the tax and benefit system, are studied through individual country cases.

The concluding section discusses the policy implications of the current situation and empirical analyses, and identifies and presents areas for future research.

### Box 1: Public perceptions of inequalities.

One major reason for studying inequalities at the present time is the preoccupation of the public. Numerous recent opinion polls have shown that a considerable proportion of EU citizens worry about inequalities and poverty. In a recent Social Climate Survey, for example, 64 % of EU respondents gave a negative judgement on the way inequalities and poverty are addressed in their countries, with only one country (Luxembourg) having an overall positive opinion. Dissatisfaction reached very high levels in a majority of countries, including Greece (90 %), Lithuania and Latvia (89 %), Romania (87 %), and France (81 %)<sup>(1)</sup> (Chart 1). A predominantly negative assessment of trends over the last five years complements the bleak picture. For example, as many as 79 % of Greeks, 62 % of Romanians, and 60 % of Portuguese believe that the way inequalities and poverty are addressed have worsened, and there is no EU country where the overall opinion is positive concerning the trend in inequality<sup>(2)</sup> (Chart 2).

In another recent European survey<sup>(3)</sup>, respondents were asked to assess whether current income differences are too large<sup>(4)</sup> and whether the wealth of the country should be redistributed in a fair way to all citizens.<sup>(5)</sup>

As shown on Chart 3 and 4, the survey found that 88 % of EU respondents either totally agreed or tended to agree that the income differences between people in their country are far too large, while 85 % either totally agree or tend to agree that their national government should ensure that the wealth of the country is redistributed in a fair way to all citizens.

(1) Special Eurobarometer No 370 on 'Social climate', data collected June 2011, question QA2.7. [http://ec.europa.eu/public\\_opinion/archives/ebs/ebs\\_370\\_en.pdf](http://ec.europa.eu/public_opinion/archives/ebs/ebs_370_en.pdf)

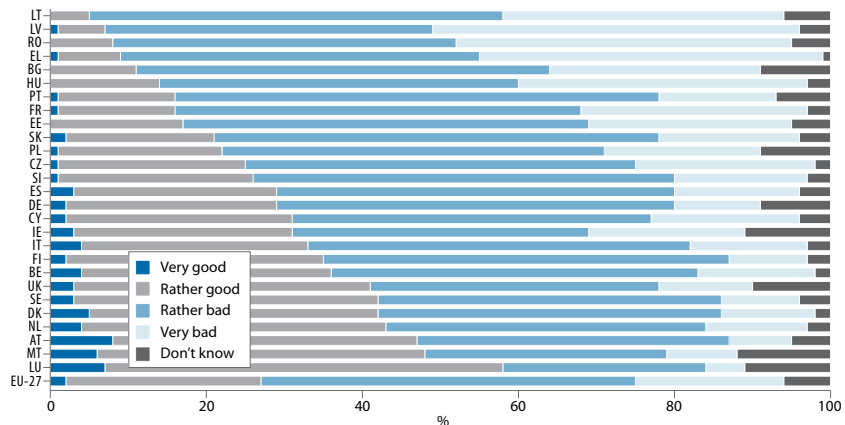
(2) Ibid. Question QA4.8.

(3) Special Eurobarometer No 355 on 'Poverty and Social Exclusion', data collected August-September 2010, Question QA14.3.

(4) Special Eurobarometer No 355 on 'Poverty and Social Exclusion', data collected August-September 2010, Question QA14.2.

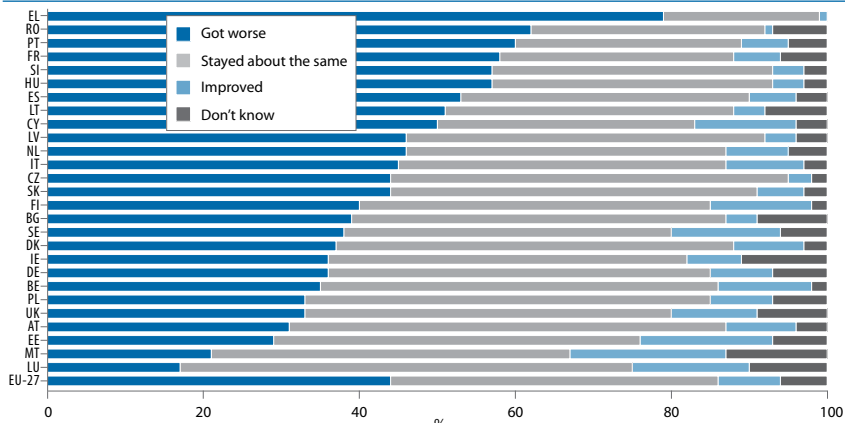
(5) Special Eurobarometer No 355 on 'Poverty and Social Exclusion', data collected August-September 2010, Question QA14.3.

Chart 1: Eurobarometer survey: How would you judge the way inequalities are addressed in our country



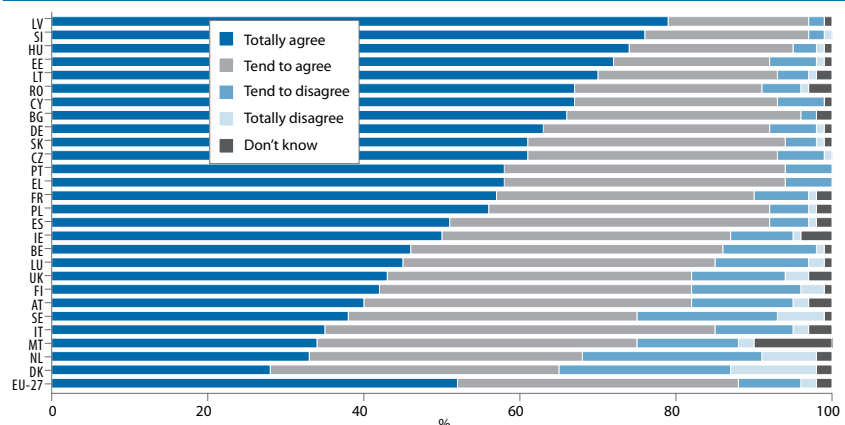
Source: Special Eurobarometer No 370 on 'Social climate', data collected June 2011

Chart 2: Eurobarometer survey: Compared with five years ago, the way inequalities and poverty are addressed in our country...



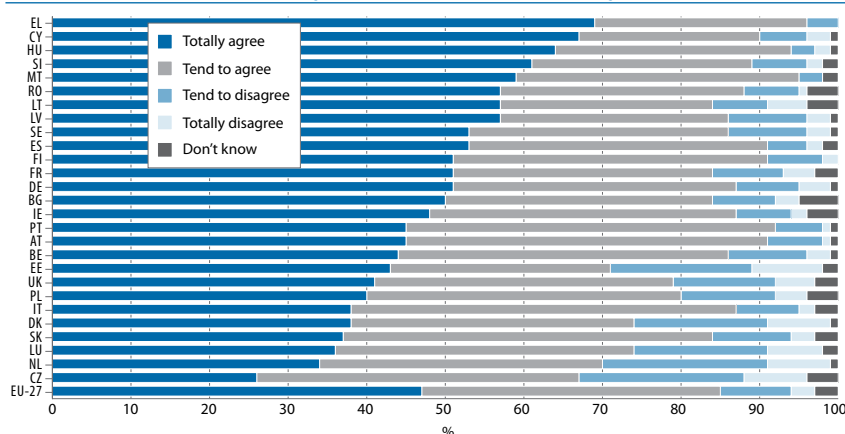
Source: Special Eurobarometer No 370 on 'Social climate', data collected June 2011

Chart 3: Eurobarometer survey: Nowadays in (our country) income differences between people are too large...



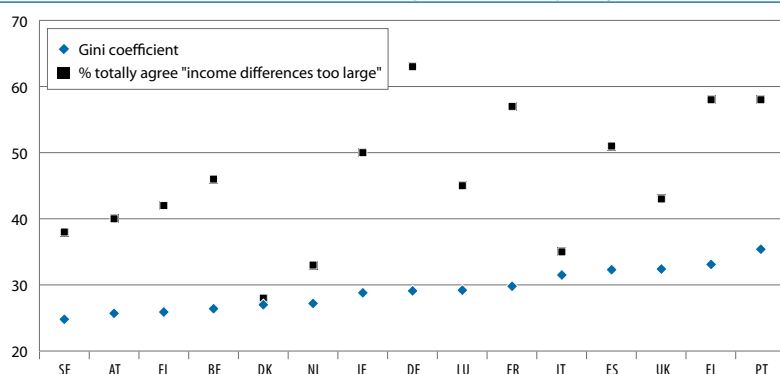
Source: Special Eurobarometer No 355 on 'Poverty and Social Exclusion', data collected August-September 2010

**Chart 4: Eurobarometer survey: The (national) government should ensure the wealth of the country is redistributed in a fair way to all citizens**



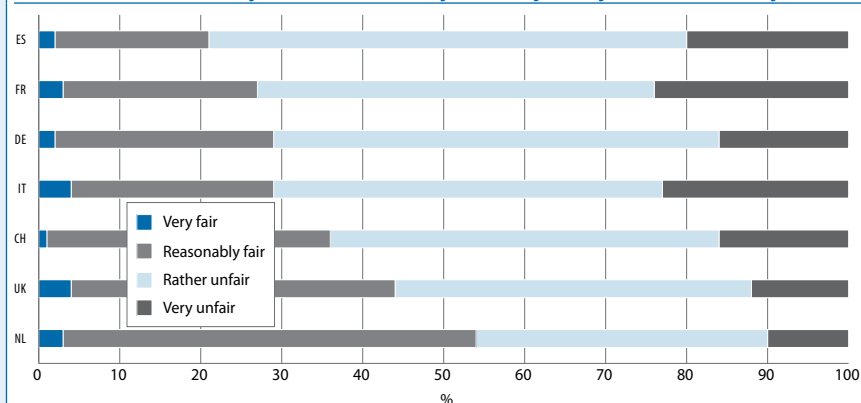
Source: Special Eurobarometer No 355 on 'Poverty and Social Exclusion', data collected August-September 2010.

**Chart 5: Gini coefficient (2009) and perceived inequality in the EU-15**



Source: Eurostat EU SILC 2009, Special Eurobarometer No 355 on 'Poverty and Social Exclusion', data collected August-September 2010

**Chart 6: IFOP survey on fairness: Today, would you say that our country is...**



Source: Jean Jaurès Foundation - IFOP: Perception of inequalities, Comparison of views in 12 countries, a survey conducted by IFOP, France for the Jean Jaurès Foundation. Data collected: April 2010

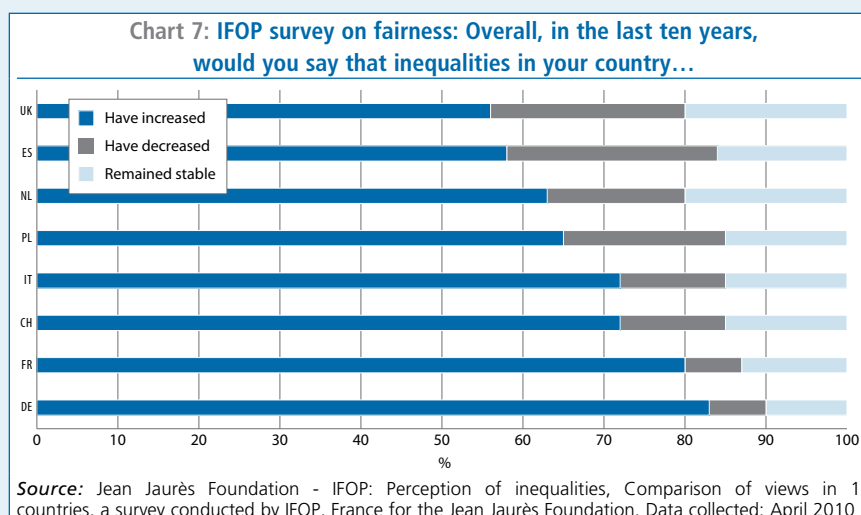
Comparing the perceived inequalities and the desire for redistribution in the EU-15 (these have a longer history of market economy than formerly socialist member states), there seems to be a rather strong correlation<sup>(6)</sup> with the income disparities defined by the Gini coefficient on household income, as shown on Chart 5. This may be also driven by the fact that high inequality countries were usually harder hit by the crisis. (The four most unequal country according the Gini coefficient in 2009 in the EU-15 included Portugal, Greece, the United Kingdom and Spain).

A recent French survey on the 'Perception of inequalities'<sup>(7)</sup> commissioned by the Jean Jaurès Foundation and carried out by IFOP, a pollster, indicates a disquietingly negative assessment of social fairness, notably in the large continental economies. Over 70% of French, German, Italian, or Spanish respondents believe they are living in a 'rather' or 'very unfair' society (See Chart 6).

(6) Correlation coefficient would be 0.53 between the Gini coefficient obtained from EU-SILC 2009 and the perception of inequality measured in August 2010.

(7) 'Perception of inequalities, Comparison of views in 12 countries' a survey conducted by IFOP, France for the Jean Jaurès Foundation. Data collected: April 2010, sample size ca. 600 persons by country, method: internet, CAWI. ([www.ifop.com/?option=com\\_publication&type=poll&id=1191&language=2](http://www.ifop.com/?option=com_publication&type=poll&id=1191&language=2))

Also four-fifths of German and French respondents believe inequalities have increased over the previous ten years (Chart 7).



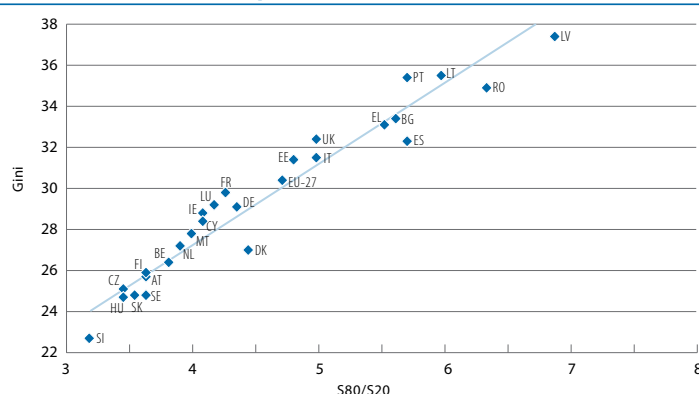
## 2. MEASURES OF INEQUALITY

There are many different forms of income, and various different ways of measuring income inequality. Atkinson demonstrated a long time ago (1970) that the choice of a measure is not merely a technical question, but also influences the results. He

recognised that opting for one indicator rather than another contains an implicit judgement on which differences in income distribution are the most important ones, for example the gap between the middle classes and the rich (e.g. P90/P50), or between the poor and the rich (e.g. P90/P10). (For definitions of inequality indicators see the explanatory Box 2)

For this reason we present the results for multiple indicators throughout the chapter: notably the Gini coefficient, the percentile ratio (P90/P10, P90/P50, P50/P10), and the ratio between the highest and the lowest income quintile (S80/S20), i.e. the quintile share ratio. As will be seen, however, despite the underlying difference, the quintile share ratio and the Gini coefficient are very closely related in the EU, as illustrated in Chart 8.<sup>(1)</sup>

**Chart 8: Correlation between the Gini coefficient and the Quintile Share Ratio, 2009**



**Source:** Eurostat, EU SILC (2009). Note:  $R^2=0.93$ .

(1) While S80/S20 and the Gini coefficient are strongly correlated, one can see that the same level of inequality according to one indicator can be judged quite differently if we look at the other. For example, in 2009 both Spain and Portugal had an S80/S20 of 6.0, a high level of inequality, where the top 20% income earners had six times as much income as the bottom 20%. However, according to the Gini indicator, Portugal was much more unequal than Spain; it had a Gini indicator of 35.4 while Spain 32.3. This is because in Portugal people with very low income and those with very high income both had relatively a higher share of total income than in Spain. (The lowest income earner 20% of the population had 7.2% of total income in Portugal and 6.4% in Spain. The top 20% income earner had 43.2% of total income in Portugal and 38.3% in Spain.)

Box 2: *Inequality indicators*

Inequality indicators usually satisfy three important criteria:

- Anonymity and symmetry: it does not matter who the high and low earners are.
- Scale independence: the level of average earnings – whether a country is rich or poor – does not matter.
- Population size independence: the size of the country's population does not matter.

The indicators analysed here fulfil all these three.

The **Gini coefficient** measures the extent to which the distribution of equivalised disposable income among individuals deviates from a perfectly equal distribution. A Gini index of zero represents perfect equality and 100 (or 100%), perfect inequality. Practically, it measures the area between the Lorenz curve (which plots the cumulative shares of total income against the cumulative share of the population) and a line defined by hypothetical perfect equality in income distribution.

The **percentile ratio** compares the income received by the  $p$ th centile to another centile, for example P90/P10 or P90/P50.

The **income quintile share** ratio or the **S80/S20 ratio** calculates the ratio of total income received by the 20 % of the population with the highest income (the top quintile) to that received by the 20 % of the population with the lowest income (the bottom quintile).

The **Atkinson index** allows for varying sensitivity to inequalities in different parts of the income distribution; it incorporates a sensitivity parameter ( $\epsilon$ ), which can range from 0 (meaning that the researcher is indifferent about the nature of the income distribution), to infinity (where the researcher is concerned only with the income position of the very lowest income group). In practice, ( $\epsilon$ ) values of 0.5, 1, 1.5, or 2 are used.

Besides these most widely used indicators there are a number of others, e.g. Generalised Entropy measure of inequality, and its specific variety, the Theil index.

#### *Relative advantages of the used inequality indicators*

The relative advantage of the Gini coefficient and the Atkinson index are that, if income is transferred from a rich person to a poor person, the resulting distribution is more equal. This transfer sensitivity (named after Pigou and Dalton) does not necessarily hold for the percentile and the quintile ratio.

The use of Gini coefficient is supported by the fact that it is the one most widely used in the inequality literature, and provides robust results.

The Atkinson index is one of the most popular welfare based measures of inequality. While the Gini coefficient gives equal weight to every difference from equality, the Atkinson index allows for greater weight to be placed on changes in a given portion of the income distribution. Thus two countries may have the same Gini coefficient, with one a small, but very disadvantaged underclass and the other where everybody has a good share of income, but there is a small group of very rich, while the Atkinson index can differ as it can be made sensitive to changes at the lower end of the income distribution, which is the end that usually arouses more concerns.

The relative advantage of the quintile, and the percentile ratio is that they provide an easily understandable measure of inequality, and allow for seeing how relative differences within the income distribution develop (e.g. comparing P90/P50 and P50/P10 helps identifying whether changes in relative income are due to changes at the top or at the bottom of the distribution). Indicators that consider the extremes of the distribution, like S80/S20, are more advantageous if changes in the middle of the distribution are of less concern.

### 3. INCOME INEQUALITY IN THE EU

When speaking about income inequality, one usually thinks of inequality of disposable income, on a personal level. However inequality in terms of the various components of income also merits particular analysis. (See Box 3.)

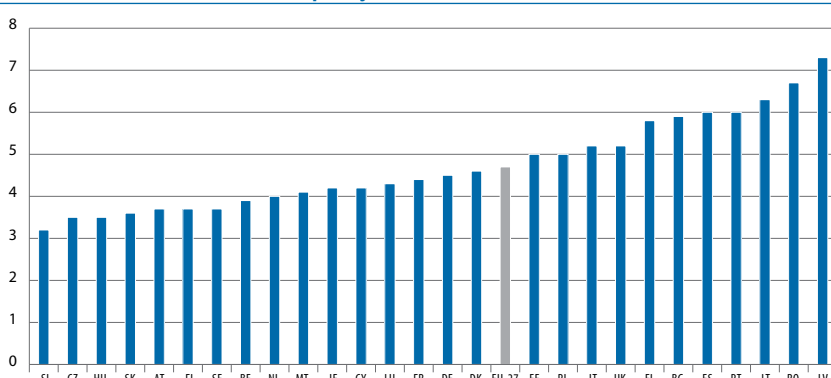
#### 3.1. Current situation across the EU Member States and recent changes

##### 3.1.1. Current disposable income inequalities in the EU-27

The most recent figures show considerable inequalities in the distribution of income among the population of the European Union Member States. On average in 2009 the 20 % with the highest income within a country received 5x as much income as the 20 % of the population with the lowest 'equivalised disposable income'. This ratio varies considerably across the Member States (Chart 9), from less than 4x in the Central European and Nordic countries (SI, CZ, HU, SK, AT, FI, SE, BE, NL) to 6x or more in Spain, Portugal, Lithuania, Romania, and Latvia.

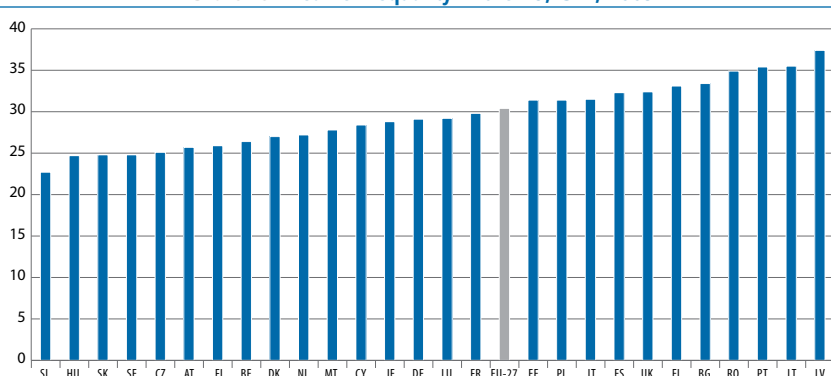
Country ranking by another inequality indicator, the Gini coefficient, gives a similar picture (Chart 10). Amongst the EU-27 Member States, the country closest to equality was still Slovenia (22.7) followed by Hungary (24.7), Slovakia, and Sweden (both 24.8). At the other end, we again find Latvia (37.4), Lithuania (35.5), Portugal (35.4), and Romania (34.9). The EU-27 average for the Gini coefficient was 30.4.

Chart 9: Income Inequality in the EU, Quintile Share Ratio, 2009



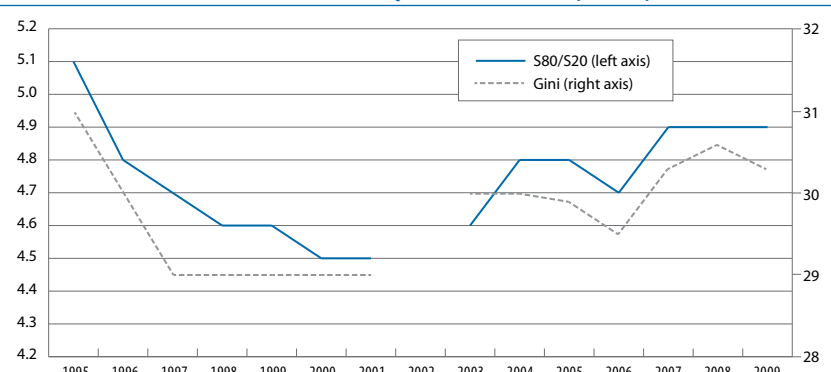
Source: Eurostat, EU SILC (2009)

Chart 10: Income Inequality in the EU, Gini, 2009



Source: Eurostat

Chart 11: Evolution of Gini and Quintile Share Ratio, EU-15, 1995-2009



Sources: Eurostat ECHP, Eurostat EU SILC and national estimates.

Note: EU-15 values are calculated as a population weighted average of the countries, there is no assumption of a joint EU-15 distribution.

##### 3.1.2. Trend changes in disposable income inequalities

Almost all indicators suggest that income inequalities have been rising in the industrialised nations since 1970 (Jenkins and Micklewright 2007 [see also Chart 11 on the decreasing trend of the EU-15 aggregate value in the mid-1990s]) but with considerable variations between countries in terms of both the patterns and timing of changes.

The principal reasons given for the overall trend include a polarisation in market-derived incomes (a growing difference between low and very high earnings, the increasing importance of unevenly distributed capital income, the emergence of long-term unemployment, and job-rich versus job-poor households) as well as changes in family structure (smaller households).



**Box 3: Definitions of income**

The definition of income is not straightforward, and deciding which definition to use will affect the findings of any kind of research. The most widely used concept in income distribution studies is that of 'disposable income', referring to the income that households have at their disposal after payment of direct taxes and receipt of cash benefits. In traditional studies on redistribution, inequality and poverty at market income level are compared to rates at a disposable income level.

The usual assumption is that people live in households, share their current incomes, and may be subject to family taxation schemes. Since living together is seen to result in economies, the individual income is counted from the total disposable income of a household (i.e. the sum of the income of all members) divided by the number of people living in the household, and weighted to allow for the economies associated with collective consumption. The weights used in the analysis here, and in most studies, conform to the modified OECD scale, which attributes weight of 1.0 to the first adult, 0.5 to everyone else aged 14 and over, and 0.3 to each child aged under 14. Each person in the household is finally assigned the same 'equivalised disposable income'. This is the income definition that is most often used in this chapter.

However, cash income is an inadequate proxy for the purpose of studying economic well-being. (OECD 2008) First of all, people can have relatively high living standards even with low incomes. Secondly, income is only an indirect measure of household consumption opportunities. Thirdly, the use of annual income may be a poor proxy of longer run conditions. This is one of the reasons why the review also looks at the impact of in-kind benefits (in Section 4.3.1.).

**Defining stages of redistribution.**

Market income = wages + salaries + self-employment income + occupational and private pensions + capital income

Gross income = market income + cash benefits + private transfers + other cash income

Disposable income = gross income – income taxes and social security contributions

Final income = disposable income + in-kind benefits (– indirect taxes)

Equivalised household disposable income = income adjusted with equivalence scales to reflect the household composition and structure

Source: Harding et al. 2004, p. 10, OECD 2008, p. 99.

Indirect taxes are outside the scope of the current review, but previous studies, with a focus on their redistributive impact, have already exposed their regressive character. Despite methodological differences, all the studies reviewed by Warren (2008) agree on the significant regressive impact on income distribution caused by consumption taxes: the poor consume a higher share of their income, and thus are paying higher consumption tax, compared to their disposable income. This is an increasingly important issue as governments are facing the need to raise revenues. Similarly, increasing energy taxes for environmental concerns would also hit the poorest the hardest if its regressive character is not taken into account in the design of taxes (EC 2008, p. 6).

One might question whether concentrating on income in general is, in fact, a good way of seeking to measure of poverty or inequality. For example, Wolff (1998, p. 131) has argued that the focus should be on wealth, which might prove a better proxy of household consumption opportunities. This measure would take into account everything that an individual owns (including the estimated rental value of housing). Fewer studies have concentrated on inequalities in wealth than in income, but the evidence suggests that wealth is distributed more unequally than human capital, earnings, or income (Davies 2009).

Our consumption and well-being are not only determined by current income, but also by past and future expected incomes (Sandmo 1999, p. 141). Moreover, in some countries, home production (e.g. food grown for own use) can complement low monetary income just as the availability of public services frees up income for other uses. If we wish to study living conditions, it might become desirable to concentrate on consumption directly rather than proxies of consumption opportunities. However, consumption cannot reflect macroeconomic evolutions, or sudden changes in individual conditions, very well. A US study shows that fluctuations in consumption inequality tend to be more muted than fluctuations in income inequality (Heathcote et al. 2010). In other words, in the face of a job-loss or any other economic problem, households rely on savings or increased borrowing in order to smooth out or maintain consumption.

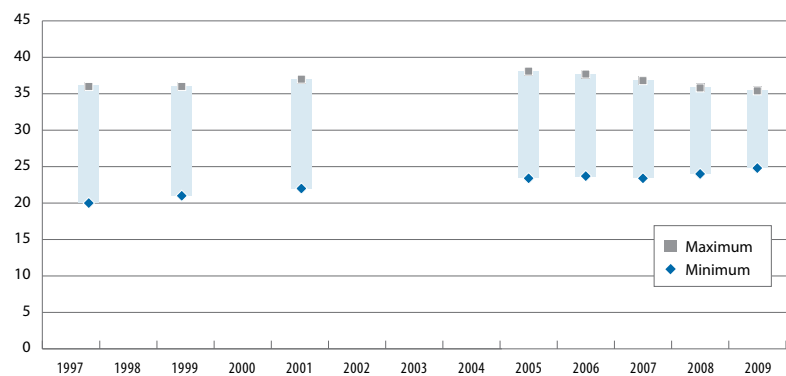
Even if we manage to compile a more comprehensive notion of income, however, we will still fail to measure the exact economic well-being of households or individuals. As Amartya Sen (2000, p. 76), has written:

"While we can decide to close our eyes to this issue by simply assuming that there is something homogeneous called 'the income' in terms of which everyone's overall advantage can be judged and interpersonally compared (and that variations of needs, personal circumstances, prices, etc. can be, correspondingly, assumed away)... there is the further problem of interpersonal comparisons taking note of variations of individual conditions and circumstances."

While income inequalities also increased in the EU overall, this does not mean that inequalities increased always and everywhere. In some countries inequalities were decreasing for a significant part of the period – in France for example the Gini indicator decreased from 34 in 1970 to 30 in 1979, and has remained below that level ever since. Data for the late 1990s also show a strong reduction in inequalities in EU-15, followed by an increase in the 2000s.

Moreover lately there appears to have been a convergence of inequality levels between the EU Member States as shown in Chart 12 and 13: among the 15 EU Member States for which we have a time series for 1997-2009, both the difference between the standard deviation of Gini indicators, and the difference between the country with the highest and the lowest Gini (the range) has diminished, continuously. In other words, in those countries where income inequality was the greatest, it decreased the most, while in many of the countries with lower level of inequality, the inequality gap widened.

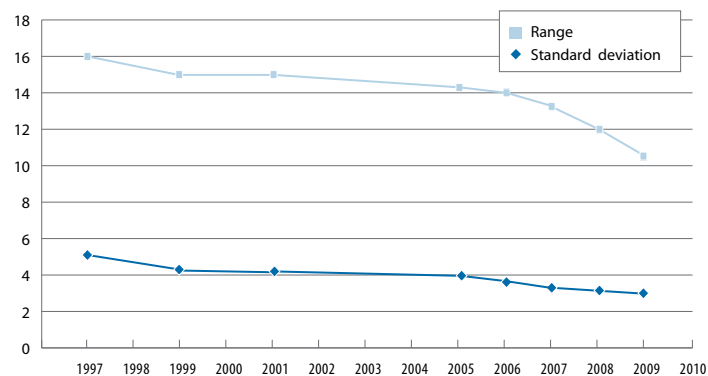
**Chart 12: Range of the Gini coefficient in the EU-15 countries, 1997-2009**



Source: Eurostat ECHP, Eurostat EU SILC and national estimates.

Note: data shown for years where data for all EU-15 countries was available

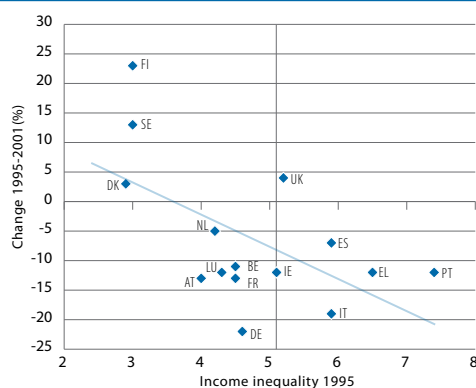
**Chart 13: Standard deviation and the minimum-maximum range of the national Gini indicators in the EU-15, 1997-2009**



Source: Eurostat ECHP, Eurostat EU SILC and national estimates.

Note: years chosen where data for all EU-15 was available.

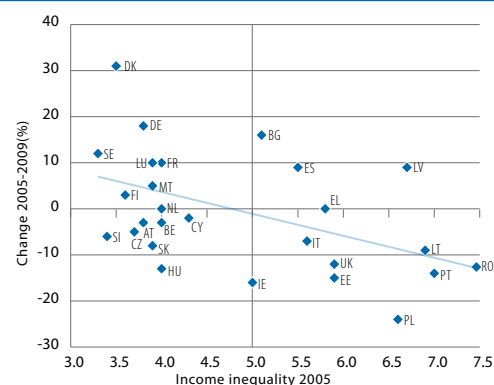
**Chart 14: Scatter plot on the changes in Inequality (S80/S20) in the EU-15, 1995-2001 (in percentage)**



Source: Eurostat.

Note: a)  $R^2=0.34$  b) Line parallel to Y-axis indicates the average level of income inequality in 1995 as measured by S80/S20, which was 5.1. c) Data for FI 1996 instead 1995, data for SE 1997 instead 1995

**Chart 15: Scatter plot on the changes in Inequality (S80/S20) in the EU-27, 2005-2009 (in percentage)**



Source: Eurostat.

Note: a)  $R^2=0.24$  b) Line parallel to Y-axis indicates the average level of income inequality in 2005 as measured by S80/S20, that is 5.0. c) Data for BG 2006 instead 2005, data for RO 2007 instead 2005

Looking at changes in individual countries (Chart 14 and 15), it is possible to distinguish four broad categories of changes concerning all EU Member States:

- first, countries with low level of inequality that witnessed an increase in inequality, most notably Denmark, Germany, and Sweden;
- second, a slight decrease in inequality in countries with low initial level of inequality, for example Hungary and Slovakia;

- third, countries with relatively higher income inequality where inequality increased, for example Bulgaria;

- fourth, countries with high inequality where inequality decreased while still remaining among the most unequal, including the United Kingdom, Estonia, Portugal, Poland, and Romania.

Table 1 and 2 break national changes in disposable income inequality into changes in the upper versus the lower part of the distribution between 2005 and 2009. While the

European averages were rather stable here as well, there were significant changes in some countries.

While in some countries inequalities changed both at the top and bottom of the distribution, in others changes concentrated more on one part of the distribution (Table 2).

The increase in inequalities is explained to a great extent by the rise of the very high incomes, but this is not well captured in the usual survey-based measurements of inequality (see Box 4).

Table 1: Additional Income Inequality Indicators

GEO/TIME	2005				2009			
	P90/P10	P90/P50	P50/P10	Gini	P90/P10	P90/P50	P50/P10	Gini
SE	2.7	1.6	1.6	23.4	2.9	1.6	1.8	24.8
DK	2.7	1.6	1.7	23.9	2.8	1.6	1.8	27.0
NL	2.9	1.7	1.7	26.9	3.0	1.8	1.7	27.2
FI	3.0	1.7	1.7	26	3.1	1.7	1.8	26
SI	3.0	1.7	1.8	23.8	2.8	1.6	1.7	22.7
CZ	3.0	1.8	1.7	26.0	2.7	1.7	1.6	25.1
DE	3.0	1.7	1.8	26.1	3.6	1.8	1.9	29.1
AT	3.1	1.7	1.8	26.2	3.1	1.7	1.8	25.7
BE	3.1	1.7	1.9	28	3.1	1.7	1.9	26
SK	3.1	1.7	1.8	26.2	3.1	1.8	1.7	24.8
HU	3.2	1.8	1.8	27.6	3.0	1.7	1.8	24.7
FR	3.2	1.8	1.8	27.7	3.4	1.9	1.8	29.8
LU	3.3	1.8	1.8	26.5	3.5	1.9	1.9	29.2
MT	3.3	1.8	1.8	26.9	3.4	1.8	1.9	27.8
CY	3.6	1.9	1.9	28.7	3.5	1.8	1.9	28.4
IE	4.0	1.9	2.1	31.9	3.5	1.9	1.9	28.8
IT	4.2	1.9	2.1	32.8	4.1	1.9	2.1	31.5
BG*	4.2	1.9	2.2	31.2	4.9	2.1	2.4	33.4
ES	4.4	2.0	2.2	31.8	4.5	2.0	2.3	32.3
UK	4.4	2.1	2.1	34.6	4.1	2.0	2.0	32.4
EL	4.5	2.1	2.2	33.2	4.3	2.0	2.2	33.1
EE	4.6	2.2	2.1	34.1	4.1	2.0	2.0	31.4
LV	4.9	2.2	2.2	36.1	5.6	2.2	2.6	37.4
PL	5.2	2.1	2.4	35.6	3.9	1.9	2.0	31.4
LT	5.4	2.3	2.4	36.3	4.8	2.2	2.2	35.5
PT	5.5	2.5	2.2	38.1	4.7	2.2	2.1	35.4
RO*	6.2	2.2	2.8	37.8	5.4	2.1	2.6	34.9
EU-27	8.9	2.0	4.4	30.6	8.0	2.1	3.8	30.4

Source: Calculations based on Eurostat EU SILC.

Note: a) In percentile ratios a ratio of 1 means equal distribution of income between the percentiles compared. A decrease in ratios p90/p10, p90/p50, and p50/p10 indicate greater equality. b) Data for BG 2006 instead 2005, data for RO 2007 instead 2005.

Table 2: Changes in the top (P90/P50) versus (P50/P10) of the distribution, 2005-2009

Inequality increased		
Polarisation: increase both on top and bottom Bulgaria, Germany	Lagging middle classes: inequalities increased on the top	Lagging poor: inequalities increased at the bottom Latvia, Sweden
Inequality decreased		
Cohesion: decrease both on top and bottom Czech Republic, Estonia, Lithuania, Poland, Romania, Portugal, United Kingdom	Middle classes catching up: inequalities decreased at the top	Bottom catching up: inequalities decreased at the bottom Ireland

Source: Calculations based on Eurostat EU SILC.

## Box 4: The top incomes and wealth

'Though richer societies are not happier than poorer ones, within any society happiness and riches go together.' – Richard Layard<sup>(1)</sup>

This box focuses on growing inequalities resulting from the rise of incomes at the very top of the distribution. Research shows that a large part of the change in the income structure of the developed Western societies over the past 30 years is attributable to the income growth of a relatively small number of high earners.

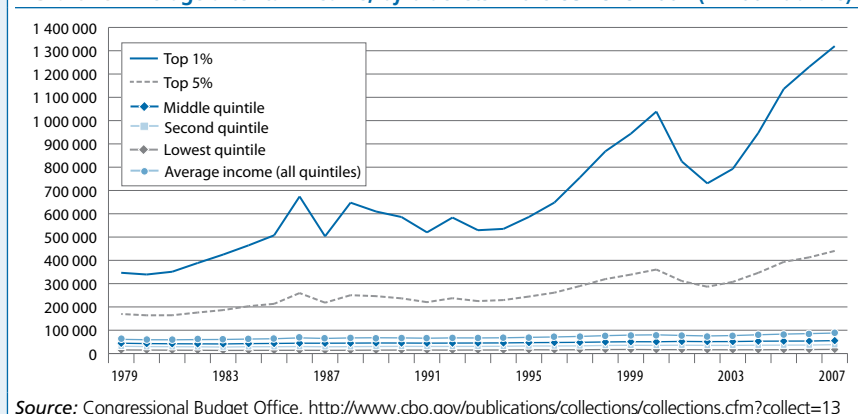
The 2008 markets collapse and the subsequent bail-outs of financial institutions with tax-payers money resuscitated the debate on the social fairness of the market economy and the equitable sharing of the risks, benefits, and costs of economic activity among the rich and the middle classes.

The rise of inequalities due to the rise of the top incomes has been best documented so far in the US and the UK where incomes at the top started rising steadily after 1979 to either achieve (in the US) or approach (in the UK) century-long highs. This ended several decades of what has been called the post-war 'Great Compression'<sup>(2)</sup> – a period of unprecedented income equality. Since then, the top incomes have risen continuously, while the lower and the middle classes saw their incomes stagnate. The financial sector offered the greatest income gains in the 2000s but, being at the epicentre of the crisis, it was hardest hit. Though the income data available to analyse this phenomena hardly reaches beyond the beginning of the crisis, there are signs that the crisis wiped out some of the income gains from the previous years, and interrupted the rise of the top incomes to some degree. However, this reversal, moderate when compared to earlier gains, may prove temporary if the earlier patterns of economic and business activity return.

While the income data based on household surveys that is typically used in the European Union to assess income inequalities proves less suitable for monitoring the top earners, tax data compiled by researchers Anthony B. Atkinson, Thomas Piketty, Emmanuel Saez, and Facundo Alvaredo and put into an elaborate resource known as the World Top Income Data Base<sup>(3)</sup> provides for more detailed inquiries into the income trends at the very top in a number of countries.

Currently available data suggest the disparities grew much less in continental Europe than elsewhere. (See also Chart 17-19). However, as some of the personal income of the top earners may be disguised as corporate income, tax data about the declared income does not solve inherent difficulties in grasping the top incomes. Furthermore, survey data, which underlie the official European Union statistics on income, are by its very nature poorly adapted to investigate very high incomes with high earners likely to be reluctant to reveal their income in surveys or to refuse to take part in the survey altogether.

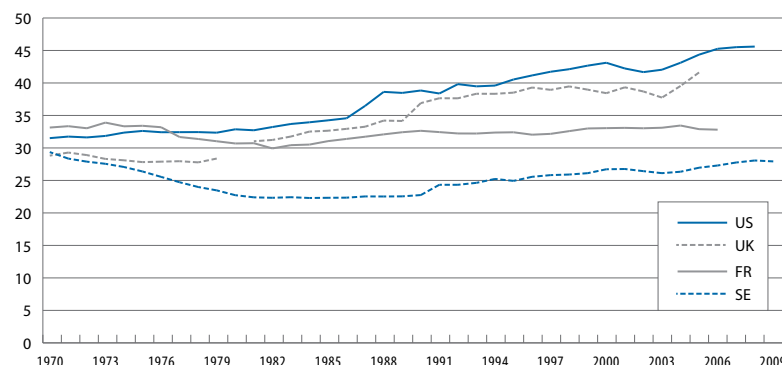
Chart 16: Average after tax income, by brackets in the US 1979-2007 (in 2007 dollars)



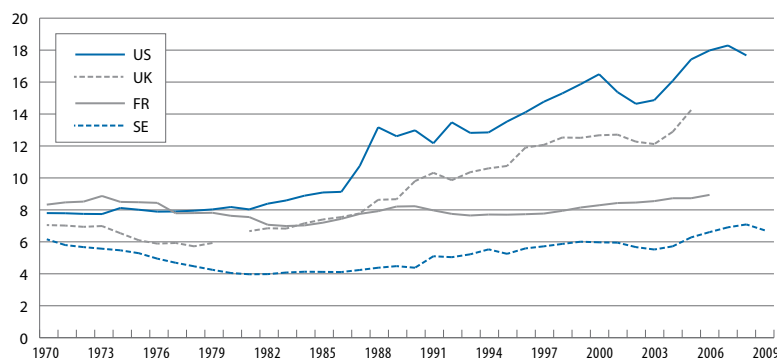
(1) Richard Layard: 'Human Satisfaction and Public Policy.' The Economic Journal, 1980: p. 737.

(2) Claudia Goldin and Robert A. Margo: 'The Great Compression: The Wage Structure in the United States at Mid-century', The Quarterly Journal of Economics Vol. 107, No 1 (Feb., 1992), pp. 1-34, Oxford University Press.

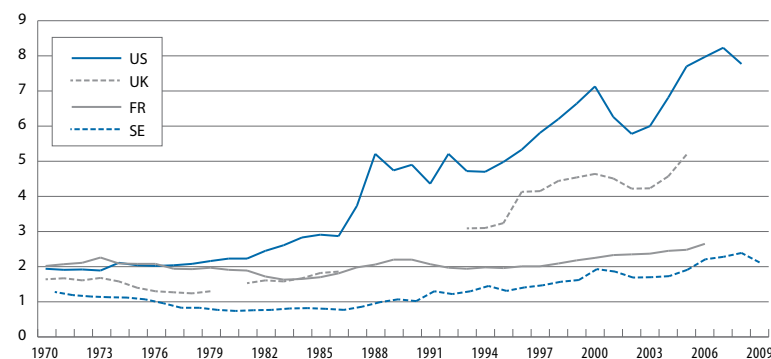
(3) For the full list of contributors to the World Top Incomes Data Base see: <http://g-mond.parisschoolofeconomics.eu/topincomes>

**Chart 17: Income of the top 10% as a percentage of the total income in the US, UK, FR and SE, 1970-2009**

Source: The World Top Incomes Data Base, a web resource authored by Facundo Alvaredo, Tony Atkinson, Thomas Piketty, and Emmanuel Saez

**Chart 18: Income of the top 1% as a percentage of total income in the US, UK, FR, and SE, 1970-2009**

Source: The World Top Incomes Data Base, a web resource authored by Facundo Alvaredo, Tony Atkinson, Thomas Piketty, and Emmanuel Saez

**Chart 19: Income of the top 0.1% as a percentage of total income in the US, UK, FR, and SE, 1970-2009**

Source: The World Top Incomes Data Base, a web resource authored by Facundo Alvaredo, Tony Atkinson, Thomas Piketty, and Emmanuel Saez

### United States

In the US, most of the changes in the top decile are due to dramatic changes in the top percentile, whose income share rose from 8.9 per cent in 1976 to 23.5 percent in 2007. The share of an even wealthier group—the top 0.1 per cent—has more than quadrupled from 2.6 per cent to 12.3 per cent over this period. (Atkinson, Piketty, Saez (2011))

As noted by the OECD (2011b), some of the increase in the share of top income recipients can be attributed in some countries (notably the US) to the increased use of pass-through entities (particularly S-corporations and limited liability partnerships in the US) rather than the previously standard corporate form, with more business income therefore being reported as personal income in order to benefit from a lower tax rate.

### United Kingdom

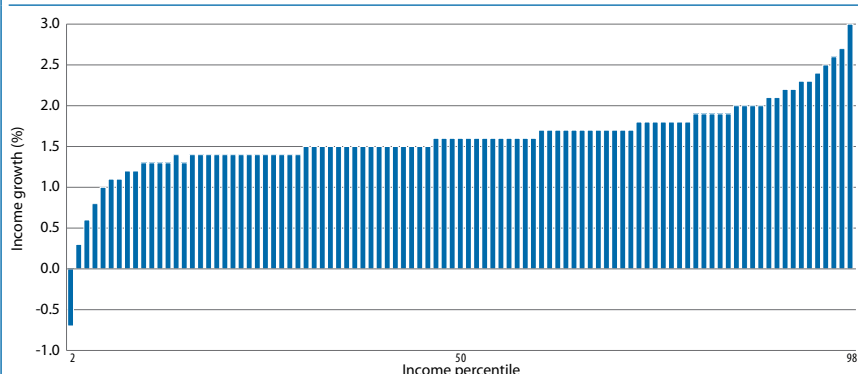
A recent study by the UK-based Institute for Fiscal Studies<sup>(4)</sup> demonstrates how income in the UK grew unevenly at each percentile of the income distribution, but with this dynamics being most pronounced the further away from the middle – i.e. at the top and bottom. (See Chart 20.)

### France and Germany

In France, the GDP growth over the period from 1976 till 2006 masks stark personal income disparities between various income fractiles. (Chart 21 and 22.)

(4) Wenchao Jin, Robert Joyce, David Phillips, Luke Sibiet: 'Poverty and Inequality in the UK 2011', Institute for Fiscal Studies Commentary 118, London, Institute for Fiscal Studies. <http://www.ifs.org.uk/comms/comm118.pdf>

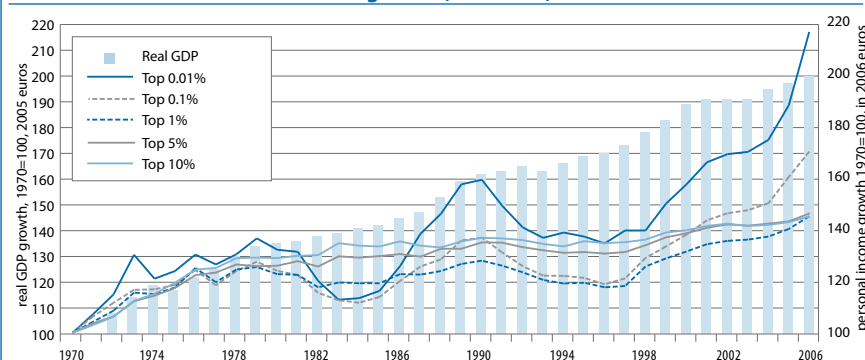
**Chart 20: Average annual real income growth in the UK by income percentile, 1979-2009/10**



**Notes:** (1) The change in income at the 1st percentile (the bottom 1%) and 99th percentile (the top 1%) are not shown on this graph. Incomes have been measured before housing costs have been deducted. (2) Before 1993 the income refers to calendar years. In 1993 and after, the income refers to financial years which run from April to March.

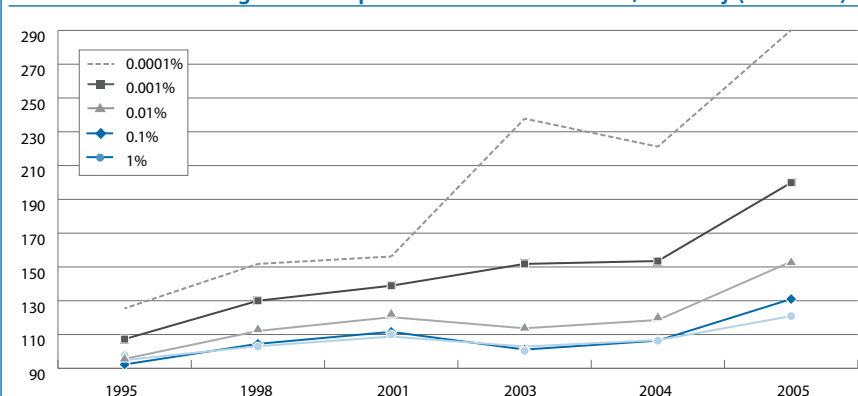
**Source:** Wenchao et al (2011). Calculations are based on the Family Expenditure Survey and Family Resources Survey.

**Chart 21: Changes in declared taxable income in France for various fractiles versus GDP growth (1970=100)**



**Source:** INSEE (for GDP), Landais (2007) (for income)

**Chart 22: Income changes in the top fractiles of the distribution, Germany (1992=100)**



**Note:** Gross market income, capital gains excluded.

**Source:** Based on (1) the German Income Tax Return sample data (ITR) drawn by the German Federal Statistical Office and (2) on the German Socio-Economic Panel (SOEP), compiled by Stefan Bach from DIW Berlin and colleagues, quoted, e.g. in Stefan Bach, Giacomo Corneo, Viktor Steiner: 'From Bottom to Top: The Entire Income Distribution in Germany, 1992-2003', Review of Income and Wealth, Vol. 55, Issue 2, pp. 303-330, June 2009, also available at [http://www.wiwiiss.fu-berlin.de/institute/finanzen/corneo/dp/BachCorneoSteiner\\_RIW\\_rev\\_18-12-08\\_final.pdf](http://www.wiwiiss.fu-berlin.de/institute/finanzen/corneo/dp/BachCorneoSteiner_RIW_rev_18-12-08_final.pdf)

### Income versus wealth

As income distribution captures only a snapshot aspect of inequality, it does not reflect the real command of resources that has been accumulated over decades and generations, i.e. wealth and its distribution which researchers usually conclude provide an even greater material disparity than that conveyed by income only.

Research by Bach, Beznoska, and Steiner (2011) suggests that in Germany in 2007 the bottom half of the distribution owned only 2% of the total net wealth, the top 10% more than 60% of wealth, the top 1% owned more than 23%. Landais, Piketty, and Saez (2011) come to very similar conclusions regarding the wealth concentration in France 2010: the bottom 50% own 4% of the net wealth, the middle 40% own 34%, the top 10% own 62%, and the top 1% own 24%. They also argue that a structure where the poor own less than 5%, the middle classes own 30-35%, and the rich own over 60%, represents a typical pattern to be found in most European countries.

In the US the wealth concentration is a matter of particularly heated debates and is usually deemed more pronounced than in Europe. In the US the bottom 50% own only 2%, the middle 40% own 26%, the top 10% own 72% (Kennickell, 2009). For the top 1% the figures cited vary considerably between researchers. For example Edward N. Wolff (2010) argues that 'between 1989 and 2007, the share of the top percentile actually declined sharply, from 37.4 to 34.6%, though this was more than compensated for by an increase in the share of the next four percentiles. As a result, the share of the top five percent increased from 58.9% in 1989 to 61.8% in 2007, and the share of the top quintile rose from 83.5 to 85.0%.' The Oxford Handbook of Economic Inequality (2009) cites 33% (2001) for the wealth share of the top percentile while Joseph Stiglitz (2011) has claimed that the top 1% control 40% of US wealth.

### 3.1.3. Impact of the crisis

Statistically speaking, inequality has not increased or even declined slightly in many countries in the early phase of the crisis as capital income was severely hit (see also Jenkins et al. 2011). At the lower end of the income distribution a number of pensioners and benefits recipients were not directly affected as income support schemes were reinforced, but this does not mean that they were spared by the crisis. Job losses were significant, and as shown by Chapter 1, unequal in their impact on different wage segments: they were especially pronounced at the middle of the distribution, hitting also the bottom somewhat, while the top quintile of jobs even saw a net

increase between the second quarter of 2008 and 2010. Moreover a reduction in absolute income can restrain actual consumption more and yield a bigger actual loss of life quality for a poorer person than a similar percentage reduction in the income of a richer person.

The long-term effects of the crisis may turn out to be harsher, however, as recovery does not necessarily guarantee jobs for all those who became unemployed and face risks of long-term exclusion. In short, income shocks may prove permanent and income losses at the bottom of the distribution can be persistent. Heathcote et al. (2010) found that, in the United States, earnings at the 10th percentile declined by

a fifth in the 1980-82 downturn, and they did not return to the pre-recession levels until the late 1990s. Brugiavini, Weber et al. (2011) found different effects in different types of welfare states: in Nordic countries formal insurance mechanisms eventually undo the effects of financial hardship on earnings, and avoid the spill over to consumption and to permanent income. In Southern European countries informal insurance mechanisms prevail and these mitigate the effects on earnings, but are unable to cope with the more persistent shocks – which are then translated in consumption. In many continental countries financial hardship seem to matter most, as both formal and informal responses seems to be weaker.

#### Box 5: Impact of austerity and anti-crisis measures

Countries responded to the crisis with a variety of measures, some of which were designed to mitigate the impact, while others were more focused on achieving financial stability through austerity packages. Some studies have already been undertaken in order to analyse the impact of different anti-crisis measures, (Callan et al. 2011), (Matsaganis and Leventi, 2011), (Leventi et al. 2010) (Callan, Nolan, and Walsh, 2011).

These studies suggest that the distributional impact was greatly influenced by the design of the measures (e.g. in Greece the pensioners' solidarity contribution sought to place a much higher burden on higher pensions than on low ones), and, while taxing high income more can have an equalising effect, taxing consumption can have the opposite effect.

#### **Measures that generally reduce inequality**

- levying higher taxes on the top incomes, on wealth
- reinforcing entitlements for social security based support (e.g. longer unemployment benefits)
- wage subsidies
- tax credits for the very low income earners
- short term working arrangements allowing to stay in employment
- additional support for very low income families (e.g. for school start)
- fighting tax evasion

#### **Measures that generally increase inequality**

- cut in in-kind benefits (e.g. education, healthcare)
- cut in social transfers
- increase in consumption, value added tax

#### **Measures that have an ambiguous effect on inequality**

- introduction of means tested benefits in place of universal benefits



## 3.2. Causes of increasing inequality and lessons to learn

Various factors impact on the structure of income inequality in European societies. Understanding the reasons behind changing inequalities is obviously extremely important for finding the best-fit instruments to tackle what are seen to be socially unjust or economically inefficient disparities. While national cases (see fifth section) illustrate the idiosyncratic paths of each country, some main factors have been demonstrated to influence income inequality: some resulting from the changes in the labour market, unionisation, and forms of employment, some caused by greater immigration flows and changes in social

structures, while globalisation and technological advances seem to play a role as well. The extent to which the impact of these factors can be offset by policy intervention varies and appropriate solutions can be contested. Some of the drivers for growing inequalities will be discussed below, while a more meticulous analysis of changes in income inequality can be found in OECD (2011b).

### 3.2.1. Market income inequalities

#### *Earnings inequalities*

Market income is the main source of household income and in all countries wages and salaries account for the largest proportion of it (Brandolini

and Smeeding 2009). For this reason, changes in the distribution of earnings have a significant and direct effect on income inequality. In the EU-27, with 90 % of all workers earning less than EUR 4 000 (gross) per month, and 50 % earning less than EUR 1 230. The great dispersion of earnings within the EU is, however, due to a large extent to differences between Member States.

Several studies note that increasing inequality is principally linked to greater earnings inequality. However, it is important, not only to note this relationship but also to understand what is behind this recent trend in wage dispersion. Based on the important OECD (2011) contribution in the field, we can summarise the key drivers for wage inequality, as noted in Box 6.

#### Box 6: Key Drivers of changes in wage inequality - impact on overall earnings inequality

##### 1. Technological advances and globalisation

Trade integration: =

Foreign direct investments and deregulation: =

Technological progress: +

##### 2. Policies and institutions

Declining union coverage: =/-

Product market deregulation: +/-

Less strict employment protection legislation: +

Declining unemployment benefit replacement rate: +/-

##### 3. Education

Increased educational level: -

**Source:** Regression analysis for 22 OECD countries in OECD, 2011b

**Note:** A positive/negative sign indicates an effect which increases/decreases overall inequality, "=" indicates an insignificant effect. Multiple signs indicate different effect under different assumptions.

All of these factors have been extensively studied in the literature on economic inequality which have demonstrated that the interconnectedness and relationship between them are very complex.

In terms of technological advances in general, the dominant feature is that there is a skills-bias such that there is more demand for better educated people. Some research shows, however, that this rising demand for skilled labour has existed since the late 19th century (Goldin and Katz 2007). Nevertheless, it is important to distinguish between different types of innovation. Technological changes, together with globalisation, can lower the demand for unskilled labour in the EU with off-shoring and international competition being facilitated by information technologies (Blau and Kahn 2009, P. 195).

Previous empirical evidence on the employment consequences of technological change is mixed, and depends largely on the forms of innovation and the levels of unit (firms, sectors, or the whole economy) (Vivarelli 2007). Process innovation in the form of introduction of robots in the manufacturing process may increase inequality as it reduces the demand for unskilled workers while increases productivity and rewards for skilled workers. On the other hand, some product innovations that lead to an increase in total consumption, such as the development of mobile phones, may stimulate employment and, on balance, reduce wages inequality.

In terms of education and investment in human capital: people with higher education can respond and adapt better to the changes in skills demand while many low-skill jobs can be easily moved across borders. However, low-wage countries such as China and India are now able to compete for high-tech jobs as well due to the fast expansion of higher education and their massive investment in human capital and R&D. As a result, globalisation has definitely changed the labour market in the West (Freeman 2009).

The OECD study found that technological progress (measured as business R&D investments as a percentage of GDP) has indeed impacted on earnings inequality over the past decades, while the effect on trade integration was found to be insignificant. On a positive side, education is seen to have exerted an important equalising impact on earnings inequality, offsetting almost entirely the increase in inequality due to technological and institutional changes (OECD 2011b).<sup>(2)</sup>

(2) Furthermore, Giesecke and Verwiebe (2009) found out that wage differentials between highly-educated and workers with a low level of education have also decreased in Germany between 1985 and 2006. However, wage differentials between occupational classes have increased.

Immigration, as one aspect of globalisation, has received a fair share of attention in the literature, but there is no consensus on its impact on the wage structure of the non-immigrants. According to the analysis by Kahanec and Zimmermann (2009), high-skilled immigration substantially reduces inequality while low-skilled immigration increases it, but with highly complex underlying mechanisms, suggesting also a need for more studies on the inequality impact in the country of origin of migrants.

In terms of the national level, labour market institutions obviously impact on earnings distribution and the economic incentives presented to both workers and employers. Differences in labour market regulation may shed light, especially on variations between countries, since it is generally recognised that centralised wage-setting institutions and trade unions tend to compress wages (Blau and Kahn 2009, 196; Visser and Checchi 2009). In general, increasing inequality seems to coincide with decreasing the number of union members and less strict regulation of minimum wages or collective bargaining. However, as Visser and Checchi (2009, 245) remark, causality between union decline and inequality can go both directions: union decline can increase inequality but growing inequality may also reduce union memberships since workers feel less protected.

In addition to technological changes, institutional changes are seen as the main determinants of wage inequality in the OECD countries. Both product market deregulation and trend towards more relaxed employment protection are associated with higher inequality. Based on data for the UK, Faggio et al. (2010) claim that most of the increase in individual wage inequality can be accounted for by an increase in inequality between firms and within industries, rather than within-firm or between-industry; this

could mean that collective bargaining is more likely to happen within firms than for an entire industry.

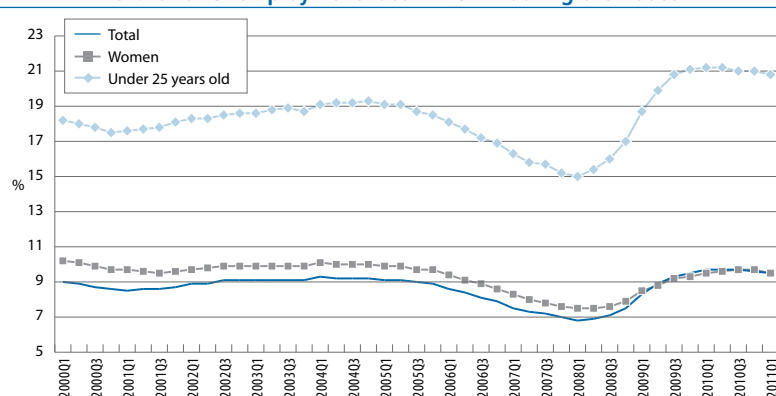
In addition to wage dispersion, the pattern of employment and unemployment affects market income inequality. OECD (2011b) analysed what share of the increasing inequality can be attributed to two opposing forces, wage and employment effects, respectively. Their findings show that rising wage dispersion has been offset by the equalising effect of rising employment rates. This means that the high unemployment rates of the current economic recession will increase the gap between rich and poor if the unemployment benefits do not offset the income loss with high enough replacement rate (Chart 23).

The increasing use of part-time and temporary contracts also impacts the market income inequality for obvious reasons. Findings based on Structure on Earnings Survey (SES) 2006 data illustrate the substantial wage penalty temporary contracts often involve. After controlling for a number of personal characteristics, such as education, age, and gender, estimates show that temporary workers earn, on average, significantly less than permanent workers in the EU (with the gap being as high as 36.5% in Portugal and 29.4% in Poland). Young people in particular are often trapped in a poor situation in which they move between temporary jobs and unemployment (European Commission 2010a, p. 152). In general, countries with high levels of inequality also have a greater incidence of low pay (Lucifora and Salverda 2009, p. 267).

### *Capital income inequalities*

While the share of capital income in total income is quite small, its contribution to income inequality has doubled in the past two decades, and has been especially significant in the Nordic countries (OECD 2011b).

Chart 23: Unemployment rate in EU-27 during the 2000s



Source: Eurostat

### 3.2.2. Household income inequality

In addition to the factors impacting market income inequality, there remain others that influence inequality, namely demographic factors and the redistributive capacity of the tax-and-benefit system. Three demographic aspects in particular have been studied: changes in the age structure, changes in household living arrangements, and changes in ethnic and racial composition of the population (Burtless 2009, p. 443). Their distributional effects will be summarised in this section while redistributive policies will be analysed more carefully in the next section, with a few empirical illustrations.

The demographic structure of European societies has changed radically during the past few decades: with, most notably, increases in the proportion of elderly people in the population and an increase in single-parent families and those living alone. These changes have not only translated into higher public spending but have also influenced income inequality and poverty as a growing sub-group of population - those past retirement age - will depend on pensions and public transfers as their main sources of income (Burtless 2009). Although there are major differences between countries in the

level of pensions (in Italy, for example, pensions are often higher than the average salary), pensions are typically lower than pre-retirement wages, as a result of rising numbers of low-income households.

Changes in household composition, notably the tendency towards more single-parent families or people living alone, have an important negative impact on living standards by limiting the possibility of pooling and sharing resources, and benefiting in general from economies of scale in living costs. As a result, single-parent families generally face a much greater risk of poverty in comparison to two-parent households with the same number of children. (For details, see Chapter 3 of the review on patterns of poverty.)

Jäntti (1997) studied the impact of demographic factors on inequality in five countries over a four to seven year span in the mid-1980s. His findings show, however, that the age structure or living arrangements do not explain increasing inequality and the main contributor to inequality seemed to be earnings inequality, as corroborated recently by an OECD study (2011b), although, as Lerman (1996) notes, it is obviously difficult to isolate demographic changes from wider social and economic transformations that are generally interconnected, and often mutually reinforcing.

Another aspect of household formation that has been investigated by researchers is the so-called 'assortative mating' or 'marital homogamy', in other words the correlation between spouses' earnings. While the relationship was not common in the past, it has now grown in many countries, especially in the UK, Ireland, Luxembourg, Poland, and Sweden (OECD 2011). Many studies argue that this trend also increases inequality, but the OECD study finds only a modest impact. In any case, as Kenworthy (2010) notes, it is difficult to think what policy makers can, or should, do to influence this trend.

Household structure and changes in values and attitudes can also have a significant bearing on job opportunities for women. Harkness (2010) has found an inverse relationship between female employment and income inequality in OECD countries. This implies that, despite the employment gap between low and highly educated women, women's earnings exert an equalising impact on income distribution. The author argues that increasing employment opportunities for women in general, and reducing employment inequality between women, will have a significant impact in terms of narrowing income inequality in Western societies. Furthermore, this impact would be more effective than diminishing the gender pay gap. Indeed, OECD (2011b) found a strong equalising impact of raising female employment in all investigated countries.<sup>(3)</sup>

(3) For an overview of policies impacting gender related inequalities, one might see Corsi et al. 2010.

## 4. THE EFFECTIVENESS OF THE TAX-BENEFIT SYSTEMS

### 4.1. Introduction

The European social model is built on the principle that the benefits of social progress should be shared, with a particular focus on the effective redistribution of income. Extensive evidence is available to show that levels of poverty and inequality depend on the public policies, redistributive characteristics of the welfare state, and the scope of transfers and taxes (Ringén 1987; Mitchell 1991; Smeeding 2005). As income inequalities have increased in many countries recently, concern about the redistributive efficiency of social policies has increased, as has pressure to analyse the contribution of the various factors contributing to equality or inequality, with a view to identifying best-fit practises.

Redistribution is seen to be necessary because the market would produce more unequal distribution of welfare than is tolerable in a democratic society (Ringén 1987). Even in economically developed societies, it is the case that inequalities in income and wealth correlate with other inequalities, for example in healthy life expectancy, education, and political power. In general, economic inequalities get translated into social inequalities that have detrimental effects on well-being.

Various policies impact on income distribution. The 'early' ones in the distributive process can include forms of state activity, such as labour market policies, or regulatory policies such as environmental policies – all of which influence the way markets behave in the first place. In contrast, redistributive policies intervene at the end of the process and seek to modify the income distribution that has been shaped by regulatory policies and market mechanisms (Ringén 1987).

The OECD study (2008) concluded that cash transfers function as the main redistributive tool in comparison to taxes and in the context of the current financial crisis, it is important to know what mix of benefits and taxes could be the most efficient or fair relative to policy objectives. The structure and financing of social programmes also vary across Europe and these factors too need to be included in the analysis on income inequality. Hence there is a need to assess the limits and recent tendencies of redistribution through the social protection systems that are currently in place in the EU Member States.

### 4.2. Limitations of redistribution studies

In all studies that attempt to examine the redistributive impacts of the tax-and-benefit system, we encounter the so-called 'counterfactual' problem. It means that we cannot clearly decipher the pattern of the alternative distribution – that which would have occurred if there had been no state intervention – against which to compare the real distribution in order to estimate the equalising impact of taxes and benefits (Ringén 1987, 178). Bergh (2005) criticises the standard method of comparing income distribution – before and after taxes and transfers – because it incorrectly supposes that the before situation is independent of the welfare state. Obviously, the design of taxes and benefits influences individual behaviour: the decision to have children, the incentive to work more or to save money, women's attachment to labour market, etc. (Danziger et al. 1981; Bergh 2005). The same is true with respect to in-kind benefits: in the absence of public day care or elderly care services, fewer women would take up paid work, education would be purchased from private markets, and employers would possibly provide health care insurance and childcare to a larger extent, all potentially changing the distribution of market and disposable income as we now know it. OECD (2008, 118) notes that standard

approach also fails to acknowledge to what extent public transfers can substitute for private arrangements. For example, in a public pension system with high replacement rates, such as in Nordic countries, future pensioners very rarely make supplementary retirement plans. In short, these factors together with regulatory policies, such as minimum wages, influence income distribution even before the introduction of redistributive policies: therefore the distribution of market income in these comparisons may be unrealistically inegalitarian. Measuring the extent of inequality is thus more straightforward than estimating the distribution via government intervention (Saunders 2010, p. 528).

### 4.3. The impact of tax-benefit system on income inequality

The main part of this section presents an empirical analysis of inequality based on original income and disposable income in 2005 and 2009 with a view to assessing the effectiveness of the tax-and-benefit system. Unfortunately, we might only find stronger evidence about the consequences of the crisis and budget cuts in the coming years.

The following section investigates the redistributive effectiveness of in-kind benefits. Box 7 discusses briefly the recent changes in the European tax systems in relation to inequality, the economic crisis, and the sustainability of the financing of the welfare state. More detailed analysis on the evolution can be found in the European Commission's recent publication "Taxation Trends in the European Union" (Eurostat 2011).

This section compares two situations: inequality of original income, i.e. market income and old age pensions, versus inequality of disposable income after the intervention of taxation and policies (see 4.2). Original income includes employee cash and near cash income, non-cash

**Box 7: Developments in tax systems**

Tax fairness is a major concern for the design of the European welfare states and which inevitably involves many trade-offs. While the top rate of personal income tax was increased recently in some countries (e.g. UK, PT, FR, IT) to cope with austerity, as shown by Eurostat (2011) the historical trend is for there to be a reduced progressivity of personal income tax, and a simultaneous rise in value-added-tax, which is regressive in nature. On the one hand, focusing relief on lower-income households has the advantage that a greater proportion of the tax break is spent immediately, supporting demand. On the other hand, emphasis on consumption taxes can boost competitiveness and efficiency of the economy.

**Personal Income Tax**

Income (re)distribution is heavily influenced by the progressivity of the tax system. The progressivity of personal income taxes (PIT) has been significantly reduced in the last decades: top tax rates were reduced and more flat rate systems introduced. The EU-27's top average personal income tax rate was reduced from 47.3 % in 1995 to 37.1 % in 2011, with the reduction accelerating after 2000, most noticeable in Central and Eastern European countries.

However, since the onset of the crisis, the trend has halted in many countries as governments are under pressure for more redistribution: Finland, France, Italy, Luxembourg, Portugal, and Spain increased the top PIT rates in 2011 as did Greece, Latvia, and the United Kingdom in 2010 (European Commission 2011, p. 31).

As a consequence of the most recent changes, in 2010, for the first time in several years, the top PIT rate increased in the EU. However, there is still a notable difference between old and new Member States: in 2011, the average top PIT rate of the Central and Eastern European countries is 23.3 %, well-below the old EU-15 countries average of 48.1 %. Furthermore, all the flat rate systems in the EU were introduced by new Member States.

In several EU countries, the progressivity of the personal income tax is partly offset by the regressive structure of social security contributions due to the contribution ceilings in place in many Member States. However, Kenworthy (2010) demonstrates that, across countries, inequality reduction achieved via government transfers correlates strongly with tax revenues as a share of GDP. Consequently, he argues that, from the perspective of redistribution, the key aspect of taxation is its quantity rather than its progressivity.

**Consumption Taxes**

While the rate of value added tax has been somewhat stable over the past decade, it has increased in a majority of countries since the beginning of the economic crisis. The change has been impressive in both magnitude and speed, as the rate increased on average by 2.5 percentage points in just three years (Eurostat 2011, p. 32). This is likely to reflect the willingness of the governments to shift the tax burden from labour to consumption due to the pressure of international competition and the supposedly more efficient character of consumption taxes (as seen from a government tax-raising perspective). However, the increase in VAT is felt hardest in the lowest income classes as they spend relatively more of their income (O'Donoghue et al. 2004; Warren 2008). Moreover, OECD (2007, p. 5) argues that the efficiency benefit and the embedded work and saving incentives of consumption taxes widen the gap between the rich and the poor even further. These concerns have so far limited the extent to which governments rely on these indirect taxes.

**Capital Taxation**

Equity considerations feature prominently in the debate on the taxation of capital given that capital is usually taxed more lightly than labour income and often taxed at flat rates. Substantial cuts in the corporate income rate have reinforced the likelihood of individuals adopting a legal form of corporation in order to avoid the payment of personal income tax on their labour income.

employee income, cash benefits from self-employment (while losses are excluded), the value of goods produced for own consumption, income from rental of property and land, regular inter-household cash transfers received, interests, dividends and profit from capital investment, income received by household members under 16 years old, and pensions from individual private plans as well as old age benefits. The last income source includes state funded pensions in order to avoid the

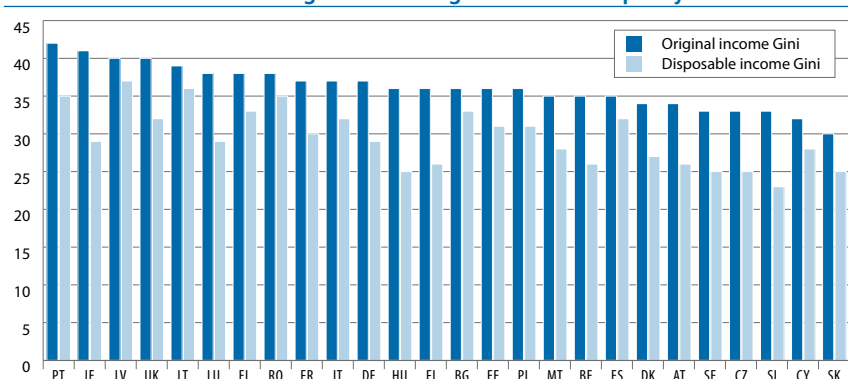
problem of unrealistic counterfactual as discussed above (this method has also been used in Atta-Darkua and Barnard 2010).

Charts 24 and 25 illustrate the redistributive effect of taxes and benefits in the EU member states in 2009. We see that taxes and cash benefits clearly reduce income inequality regardless of the inequality measure used. The Gini coefficient decreases by 19 % on average, and the P90/P10 ratio by 34 %. However, the differences

between countries are considerable: in Hungary, Denmark, Ireland, and Slovenia inequality is cut by a third (Gini), while in Bulgaria, Romania, and Latvia the effect does not reach 10 % (see Table 3). Over the last decades, the maturing social protection has helped reducing inequality, while new trends in labour market and household structures are challenging the effectiveness of social security systems in many countries. Chart 26 shows that the connection between the level of original income inequality



**Chart 24: Income inequality (Gini coefficient) in 2009, in descending order for original income inequality**



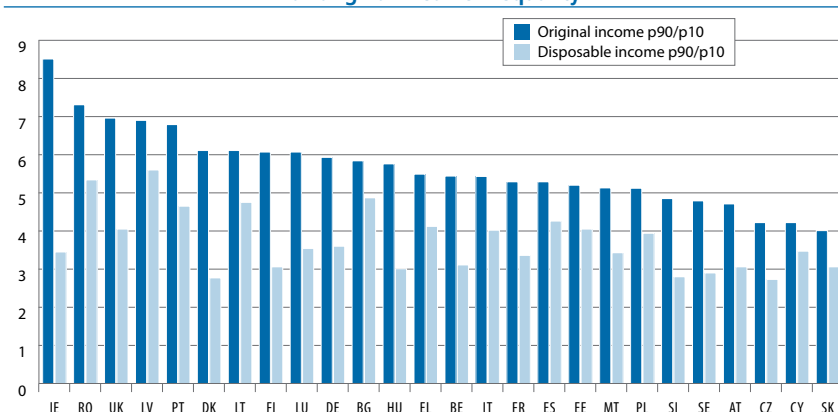
Source: Calculations based on EU-SILC 2009.

Note: a) Original income: market income and old age benefits, for full definition see the introduction of Section 4.3. b) Data for NL missing.

and redistributive impact is weak. In other words, countries with the biggest market inequality are not necessarily those that redistribute the most.

Brandolini and Smeeding (2009, pp. 94-95) find that the redistributive impact of taxes and cash transfers increased substantially from the 1960s and then stabilised or dropped around the 1990s in many countries. The UK has witnessed the most dramatic change, from a situation close to the Nordic countries in the 1980s to a model more similar to the US in recent times.

**Chart 25: Income inequality (P90/P10) in 2009, in descending order for original income inequality**

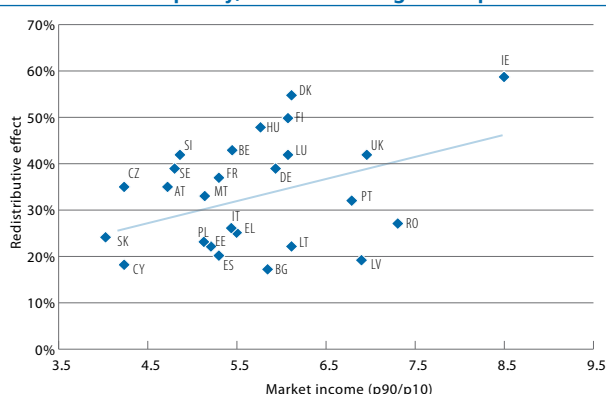


Source: Calculations based on EU-SILC 2009.

Note: a) Original income: market income and old age benefits, for full definition see the introduction of Section 4.3. b) Data for NL missing.

The size of social expenditure clearly matters for reducing income inequality. However, as Chart 27 shows, efficiency of spending is also important. With the same expenditure (as % of GDP), there are countries where the combined effect of the tax and benefit system is reducing original income inequality (measured as the Gini indicator of market income and old age benefits, before tax and other transfers) two or three times as much than some other Member States (e.g. Hungary and Ireland versus Spain, Finland versus Greece).

**Chart 26: Correlation between original income inequality (p90/p10) and redistributive effect of taxes and transfers**  
(% reduction in income inequality, not considering the impact of old-age benefits)



Source: Calculations based on EU-SILC UDB 2009.

Note: a)  $R^2=0.12$  b) Data for NL missing.

**Table 3: Income inequality (Gini coefficient) in 2009, in descending order for redistributive effect**

2009	Original income	Disposable income	Redistributive effect: reduction in Gini
HU	0.36	0.25	32%
SI	0.33	0.23	30%
IE	0.41	0.29	30%
FI	0.36	0.26	28%
SE	0.33	0.25	25%
BE	0.35	0.26	24%
AT	0.34	0.26	24%
CZ	0.33	0.25	23%
LU	0.38	0.29	23%
DK	0.34	0.27	22%
MT	0.35	0.28	21%
DE	0.37	0.29	20%
UK	0.40	0.32	19%
FR	0.37	0.30	19%
PT	0.42	0.35	17%
SK	0.30	0.25	16%
IT	0.37	0.32	14%
EL	0.38	0.33	13%
EE	0.36	0.31	13%
PL	0.36	0.31	12%
CY	0.32	0.28	11%
LT	0.39	0.36	9%
LV	0.40	0.37	7%
BG	0.36	0.33	7%
RO	0.38	0.35	7%
ES	0.35	0.32	7%
NL		0.27	

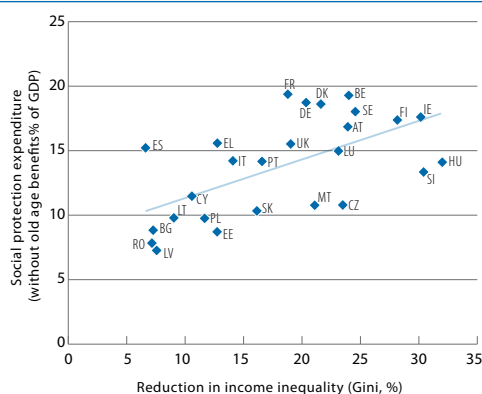
Source: Calculations based on EU-SILC 2009

Note: a) Original income: market income and old age benefits, for full definition see the introduction of Section 4.3. b) Data for NL missing.

### 4.3.1. The impact of in-kind benefits on income inequality

Table 4 illustrates yet another redistributive mechanism of the welfare state, that of in-kind benefits (see Chapter 3 for further explanation on the method and reasoning; for a more detailed analysis, see Vaalavuo 2011). All indicators of inequality used in the table show a considerable reduction in inequality when we move from disposable income to final income. If we focus our attention on the results for 2009, we see that in Romania the impact is the most significant; inequality decreases by 53 % when we look at the quintile share ratio, and by 27 % and 43 % for the two other measures. On average, inequality is reduced by 36 % (s80/s20) in all countries, down from 37 % in 2006.

The level of reduction is tightly connected to the initial level of inequality as shown in the scatter plot (Chart 28): countries with higher level of inequality in disposable income are likely to have a greater redistributive effect of in-kind benefits. In fact, in countries like Denmark and Spain where income inequality increased from 2006 to 2009, the effect of in-kind benefits grew as well. On the other hand, when income inequality decreased during this period, as it did in Latvia, Portugal, Hungary, and Slovakia, the redistributive impact of public services diminished. These effects should be taken into account when drawing policy conclusions from the results.

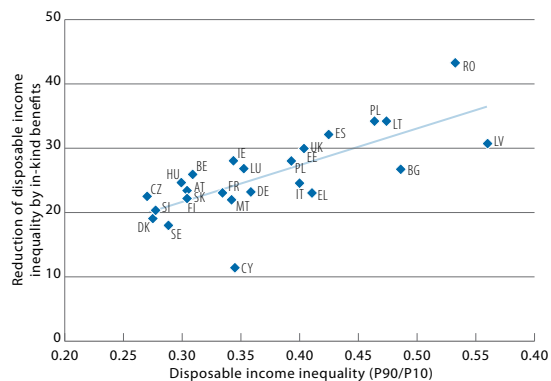
**Chart 27: Correlation between social protection expenditure (without old age benefits, % of GDP, 2008) and redistributive effect of taxes and transfers (not considering impact of old age benefits, % reduction in Gini)**

Source: Eurostat ESSPROS and calculations based on EU-SILC 2009.

Note:  $R^2=0.25$ . b) Data for NL missing.



**Chart 28: Connection between disposable income inequality and reduction in inequality (P90/P10) due to in-kind benefits, 2009**

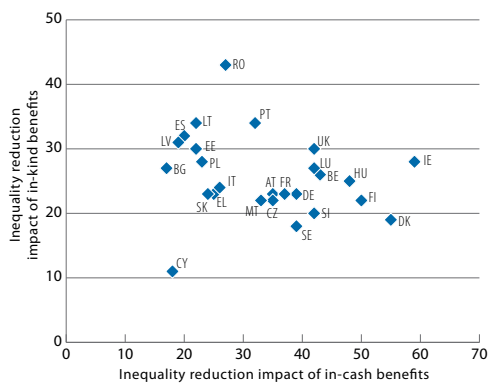


Source: Calculations based on EU SILC UDB 2009.

Note: a)  $R^2=0.54$ . b) Effect of in-kind benefits refers to reduction in inequality. c) Data for NL is missing.

Chart 29, on the other hand, shows that no common pattern can be found in the redistributive effect of cash benefits and in-kind benefits. There is a slight negative correlation between the two; in other words, countries redistributing heavily through in-kind benefits fail to do so through the tax-benefit system. We should not, however, jump to conclusions that this is a purposefully designed complementary system of redistribution.

**Chart 29: Reduction in inequality (P90/P10) through cash and in-kind benefits, 2009**



Note: a) No clear relationship,  $R^2$  would be 0.05. b) Impact of in-kind benefits include the impact of taxes, but does not include the impact of old age benefits. c) Data for NL is missing.

Table 4: The Impact of in-kind benefits on income inequality, in 2006 and 2009

	s80/s20						Gini						p90/p10					
	2006			2009			2006			2009			2006			2009		
	Disposable income	Final income	Inequality reduction	Disposable income	Final income	Inequality reduction	Disposable income	Final income	Inequality reduction	Disposable income	Final income	Inequality reduction	Disposable income	Final income	Inequality reduction	Disposable income	Final income	Inequality reduction
AT	3.65	2.46	33%	3.66	2.47	33%	0.25	0.20	21%	0.26	0.20	21%	3.04	2.35	23%	3.06	2.36	23%
BE	4.16	2.61	37%	3.89	2.51	36%	0.28	0.21	23%	0.26	0.20	24%	3.23	2.37	27%	3.11	2.31	26%
BG	:	:	:	5.88	4.03	32%	:	:	:	0.33	0.28	16%	:	:	:	4.87	3.58	27%
CY	4.27	3.35	22%	4.22	3.37	20%	0.29	0.25	13%	0.28	0.25	11%	3.52	2.98	15%	3.47	3.08	11%
CZ	3.38	2.31	32%	3.46	2.40	30%	0.25	0.19	26%	0.25	0.19	25%	2.85	2.15	25%	2.73	2.12	22%
DE	4.08	2.72	33%	4.50	3.11	31%	0.27	0.20	21%	0.29	0.23	20%	3.06	2.37	22%	3.60	2.77	23%
DK	3.44	2.05	40%	4.63	2.43	48%	0.24	0.19	19%	0.27	0.19	18%	2.66	2.23	16%	2.77	2.24	19%
EE	5.51	3.30	40%	5.01	3.02	40%	0.33	0.25	24%	0.31	0.24	24%	4.31	2.95	31%	4.05	2.85	30%
EL	6.05	4.01	34%	5.75	3.98	31%	0.34	0.28	17%	0.33	0.27	15%	4.55	3.27	28%	4.12	3.18	23%
ES	5.27	3.09	41%	5.98	3.28	45%	0.31	0.24	23%	0.32	0.24	22%	4.29	2.85	34%	4.26	2.90	32%
FI	3.63	2.41	34%	3.70	2.42	35%	0.26	0.21	20%	0.26	0.20	22%	2.93	2.35	20%	3.06	2.38	22%
FR	3.97	2.61	34%	4.38	2.92	33%	0.27	0.21	22%	0.30	0.24	20%	3.24	2.47	24%	3.36	2.59	23%
HU	5.46	3.01	45%	3.50	2.40	31%	0.33	0.25	24%	0.25	0.19	22%	3.69	2.64	29%	3.01	2.27	25%
IE	4.88	2.98	39%	4.21	2.67	37%	0.32	0.24	26%	0.29	0.21	25%	3.85	2.59	33%	3.45	2.49	28%
IT	5.49	3.55	35%	5.20	3.46	33%	0.32	0.26	18%	0.31	0.26	18%	4.16	3.06	26%	4.02	3.04	24%
LT	6.26	3.54	43%	6.29	3.72	41%	0.35	0.26	24%	0.35	0.27	22%	5.25	3.19	39%	4.75	3.14	34%
LU	4.16	2.85	32%	4.30	2.71	37%	0.28	0.22	20%	0.29	0.23	23%	3.42	2.60	24%	3.54	2.60	27%
LV	7.83	4.15	47%	7.33	4.29	42%	0.39	0.30	23%	0.37	0.30	18%	5.30	3.34	37%	5.60	3.89	31%
MT	:	:	:	4.08	2.84	30%	:	:	:	0.28	0.23	19%	:	:	:	3.43	2.68	22%
PL	5.64	3.48	38%	4.96	3.26	34%	0.33	0.26	20%	0.31	0.25	20%	4.58	3.18	31%	3.94	2.85	28%
PT	6.73	3.74	44%	5.99	3.56	41%	0.38	0.29	23%	0.35	0.27	23%	5.14	3.34	35%	4.65	3.07	34%
RO	:	:	:	6.70	3.12	53%	:	:	:	0.35	0.25	27%	:	:	:	5.34	3.04	43%
SE	3.53	1.97	44%	3.70	1.97	47%	0.24	0.19	17%	0.25	0.20	20%	2.75	2.43	12%	2.90	2.38	18%
SI	3.39	2.37	30%	3.24	2.32	29%	0.24	0.19	21%	0.23	0.18	21%	2.92	2.28	22%	2.80	2.23	20%
SK	4.04	2.68	34%	3.56	2.61	27%	0.28	0.21	25%	0.25	0.20	20%	2.98	2.16	27%	3.06	2.35	23%
UK	5.40	3.29	39%	5.28	3.06	42%	0.33	0.25	21%	0.32	0.25	23%	4.23	2.92	31%	4.05	2.84	30%
Average	4.79		37%	4.75		36%	0.30		21%	0.29		21%	3.74		27%	3.73		26%

Source: Calculations based on Eurostat EU-SILC UDB 2006 and 2009. Note: Data is not provided if it was not available in the UDB at the time of the calculations.

## 5. COUNTRY STORIES

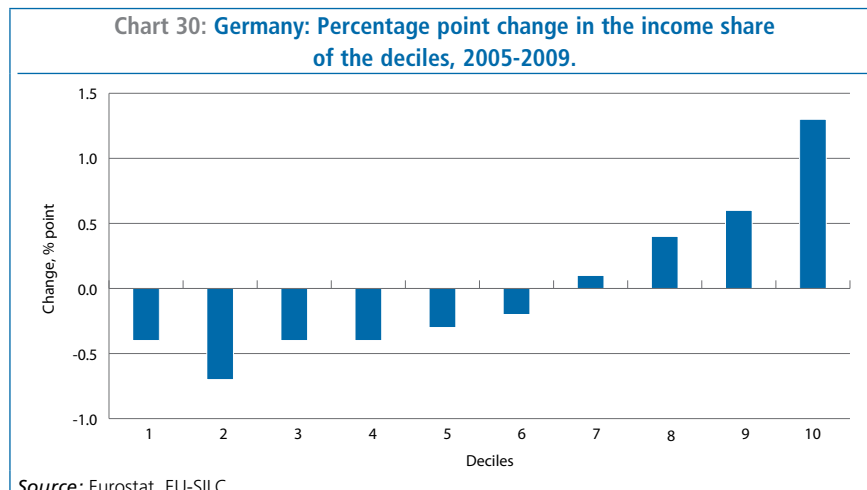
As the current economic crisis has increased the number of unemployed by more than 5 millions, this has inevitably affected the incomes at the disposal of households. Unemployment is likely to stay high for some time, while the protection against the income loss that it usually induces is handled in different ways across the EU. This section illustrates the above discussion on trends, causes, and consequences of inequality at the country level. Case studies can deepen our understanding on the implications of different social policies practised and of various structural and cultural settings.

### Germany

Incomes in Germany are becoming more unequal. While disposable income inequality was relatively flat between 1980-2000, a rapid increase in inequality started thereafter. This is due partly to changes in household structures - an increase in single and lone parents - as well as a strong increase in wage inequalities, the spreading of part-time and agency work, and tax and benefit reforms.

The increase in wage inequality was particularly strong, but the tax and redistributive system were able to compensate for a while, and mitigated the change in disposable income. Wage inequality increased in the 1980s mostly at the top of the distribution. (Dustmann et al. 2009) Since the mid-1990s, the number of low paid workers also started to increase.

The labour market policies accentuated polarisation as the proportion of middle income earners decreased significantly. Changes in the German labour market model over the past decade have had significant consequences on income distribution, and at least partly explain rising inequality (Kenworthy, 2010). First of all, the traditional wage-setting system and coordination have slowly been dismantled and the wages increased only slowly, in some years even below the

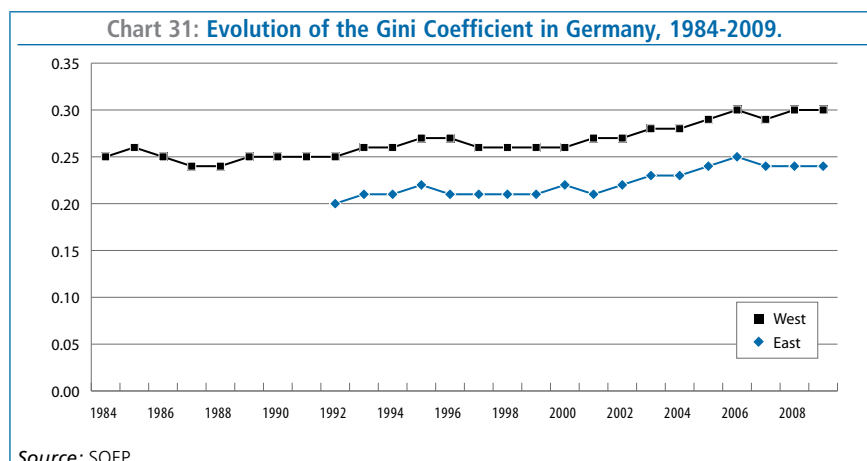


inflation rate. Secondly, a new form of employment, exempt from heavy payroll taxes and minimum wage, was initiated in 2003 and these 'mini-jobs' now account for about 15% of German employment (Bosch et al. 2009, cited in Kenworthy 2010). Overall, the number of low-paid employees in Germany rose from some 4.5 million in 1995 to some 6.5 million in 2006, hence by 2 million, or about 43% (Kalina and Weinkopf 2008). Thirdly, the Hartz reforms seems to have increased the willingness of job candidates to make compromises regarding wages and working conditions (Eichhorst et al., 2010)

Parallel to the changes in the labour market, in the mid-2000s the duration and generosity of unemployment benefits were reduced. Losers were mainly singles, and couples without children receiving unemployment assistance before (Goebel and Richter 2007).

As a result, the proportion of the population at both margins of the income distribution increased. On the whole, the polarisation continued in 2005-2009 as well, with the deciles with lower income losing their share of the total income, while top deciles increasing their share (Chart 30).

The economic crisis was handled in a way that helped to reduce inequalities, at least temporarily. Employment and income levels remained rather stable, as labour market adjustments were achieved through short term working arrangements, other forms of flexible labour arrangements, and the German government's aggressive stimulus packages (Grabka-Frick, 2011). Consequently, between 2008 and 2009, there was a small reduction in S80/S20 to 4.5 and Gini to 29.1 – still, these levels are well above the levels of inequality seen before 2005 (Chart 31).



## Greece

In one of the most unequal countries of the EU, dynamic growth since the mid-1990s helped raising living standards, but high levels inequalities remain, partly due to the low poverty reduction impact of social protection. The consequences of the current budget cuts and the unprecedented economic and social crisis will only be fully felt later. However, for the moment, the impact on job opportunities has been considerable, and the unemployment rate of young people is especially alarming.

Income inequality had decreased slightly in Greece between 1995 and 2009, if measured by the Gini indicator. Still, Greece continues to remain among the most unequal countries in the EU-15, and has the highest share (19.7 % in 2009) of population at risk of poverty.

In the two decades before the crisis, the relative income of middle-class families had improved, and relative poverty was also reduced (it decreased from 23-22 % in 1995-1996 to 20 % in 2008). This was partly due to the fact that high economic growth allowed a gradual increase in expenditure on social protection benefits (from 21.8 % of the GDP in 1996 to 24.5 % in 2007) in a social security system dominated by a universal coverage approach. As a result, the redistributive role of the social security system is rather limited, as illustrated by the below average poverty and inequality reduction impact of social transfers other than pensions.

Meanwhile Greece shows relatively high levels of inequality with a Gini coefficient that has remained quite stable, with a 2 point reduction during the last years and a quintile share ratio showing similar developments.

The crisis led to a loss of absolute income, and some groups, especially the new unemployed, were hardly hit. However, according to estimations based on Euromod, between



2009 and 2010 there was (only) a slight increase in inequalities (Matsaganis and Leventi 2011). Taking into account the impact of the VAT increase, there may have been to a considerable increase in inequality. (Matsaganis and Leventi 2011)

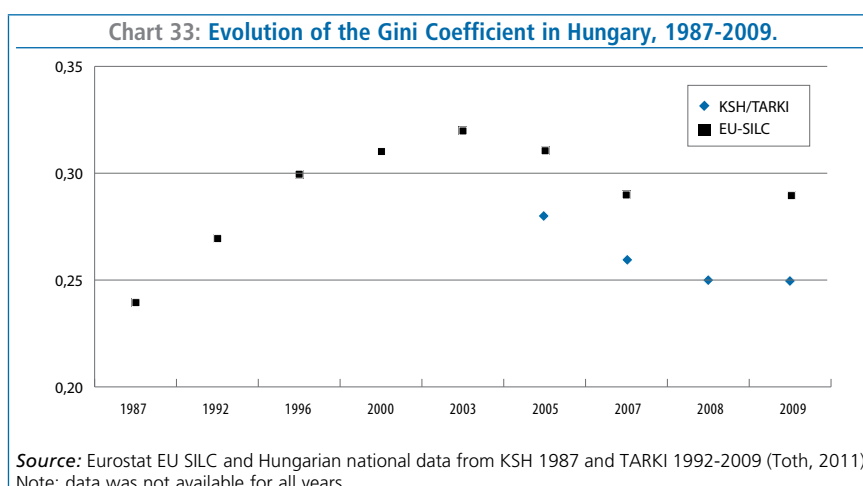
## Hungary

Following a strong increase after 1989, income inequalities in Hungary remained stable, and they still count among the lowest in the EU.

Accelerating a trend that started earlier, the economic transition after 1989 brought a strong increase in income inequality that was exacerbated by the drop in real income. The main reasons were the loss of 1 million jobs in a country of 10 million, and a strong increase in wage

differences. Employment situation polarised rapidly, and many active aged sank in poverty, while pensioners were relatively spared – the at-risk of poverty rate is now significantly lower for households with a head above 60 years, than for households headed by a 35-59 years old. (TÁRKI, 2010) Following these rapid changes, between 1995 and 2009, income inequality remained broadly stable, even declined periodically.

Between 2007 and 2009, a period of austerity, income inequality increased only slightly. While real disposable income declined by 7 %, the very rich and very poor fared worse than the middle classes, so inequality was kept moderate. (Toth and Medgyesi, 2011) Changes in VAT, not reflected in the disposable income indicators likely impacted poorer more.



Since 2009, entitlements for social transfers were reduced, and the progressive personal income tax was replaced by a flat tax, benefiting higher income deciles much more – changes that may have impaired the inequality reducing effect of the tax system (as suggested by Benedek, 2006).

### Ireland

Strong and sustained growth, tax reforms, and increased social transfers and increased labour market participation in households helped raising household incomes overall. While fiscal consolidation was implemented in a generally equitable way, the fiscal crisis may threaten the level of public expenditure and can lead to rising inequalities later.

Ireland experienced a period of strong economic growth from the early 1990s, leading to a strong improvement in living standards, when the median income almost doubled between 1994 and 2001. While real income grew generally, incomes grew more for recipients of labour and capital income (situated usually towards the top of the distribution) and less for recipients of state support. (Layte, Nolan, and Whelan, 2004) This led to an increase in the at-risk of poverty rate (from 16 % to 22 %) although it impacted the Gini indicator only moderately.

The economic boom was accompanied by a significant increase in employment. Strong demand for low-skilled employees appears to have kept up their returns, and Ireland did not experience the pronounced increase in earnings inequality and widening gap between those with high and low levels of education. (Nolan, Callan, and Maitre, 2011)

In the 2000s, the at-risk of poverty rate fell from 22 % to 14 %, greatly due to a big increase in social transfers. The poverty reduction effect of social transfers (excluding pensions) increased from 26 % to 61 % in that period. As a result, Ireland's tax and

cash benefit system was among the most equalising in the EU, as shown in Section 4.3. This characteristic was maintained during the recession: the households have been relatively well protected during the early phase of the recession. Despite the severity of the recession – an 11 per cent contraction in GDP, a 7 % point reduction in the employment rate – total household income even increased by over 3½ per cent over 2007-9. (Jenkins et al, 2011) The at-risk of poverty rate also continued to decline, from 16.5% to 14 per cent in this period. This is greatly attributable to the stabilising effect of social transfers, together with a decline in median income. The fact that inequalities were kept moderate is to a large extent due to the nature of austerity adopted – e.g. progressive cuts in higher public sector salaries. (Callan, Nolan and Walsh, 2011). However, the distributional impact of cuts in social services has not yet been quantified, the study warns that they are likely to affect more the most vulnerable, including families with children. In addition, the prolonged unemployment crisis, with consequent rise in long-term unemployment, is leading to higher levels of basic deprivation.

### Finland

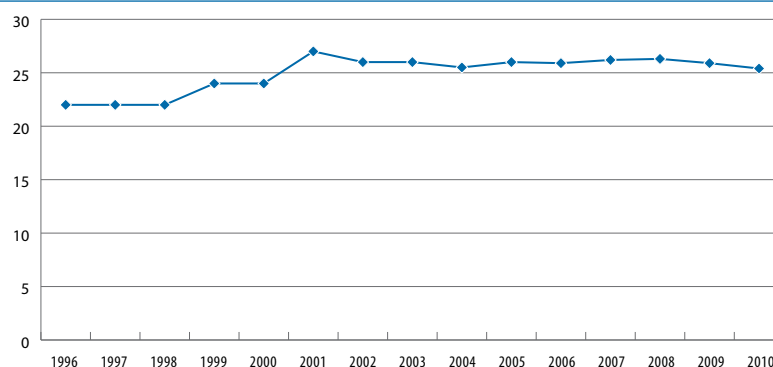
Reforms of the tax and benefits system have led to an increase in inequalities since the mid-90s but, despite this, Finland remains among the more equal countries of the EU.

During the recession in the beginning of 1990s the disposable income of all households fell markedly while the crisis affected different parts of the distribution differently (Atkinson and Morelli 2010, 47). The decrease was greatest in 1992 when incomes fell by 4-5 %, but the at-risk-of-poverty rate fell as well, suggesting that incomes at the bottom part of distribution were reduced less sharply.

In 1995 incomes increased again as the technological boom created many jobs and the public sector employment increased (Gustafsson and Johansson 1997). However, the increase was especially significant in the top quintiles at the end of the decade. One reason for the gains of the top quintiles is that the share of capital income in these quintiles had increased, and capital income is taxed less than income from work. This was balanced at the beginning of 2000s when increase of income of the middle quintiles was more rapid than in the top quintiles. More recently the incomes of the top quintile decreased on average by 1 % while, in other income classes, they increased (on average by 5 % at the bottom of the distribution), thus narrowing income inequality in 2009 (Statistical Office of Finland 2011).

Inequality measured by Gini coefficient was quite stable in the 1980s and until the mid-1990s. Since then the income distribution has been less equal, with inequality increasing more than in many other EU countries

Chart 34: Gini indicator in Finland, 1996-2010



Source: Eurostat ECHP and EU SILC. Note: breaks in series in 2001 and 2004.

(OECD 2008). The main reason for this is that the role of taxation in minimising income differences has weakened. At the same time the share of cash benefits of households' income have decreased and the role of market income has increased.

Nevertheless, it should be mentioned that Finland's tax-and-benefit system is among the most redistributive in the EU after Ireland and Denmark.

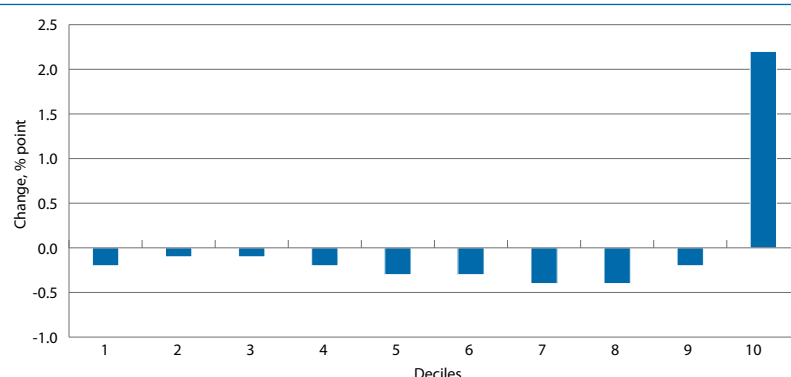
### France

Long-term trend of reduction of inequalities and poverty started in the 1970s despite an increase in market income inequalities due to segmentation of the labour market and the polarisation of jobs between job-rich and job-poor households. However, the latest data show signs of growing inequality in the 2000s.

Levels of inequality have remained relatively unchanged since 1979. In the 1970s, a period of strong growth, income inequality as measured by the inter-decile ratio (D9/D1) dropped from 4.6 to 3.5. Despite a rise in unemployment rate in the early 1980s, this ratio has remained relatively stable, although it increased from 3.2 back to around 3.5 between 2005 and 2008. While the relative situation of old age pensioners has continued to improve since the 1970s, the relative situation of workers and unemployed has weakened.

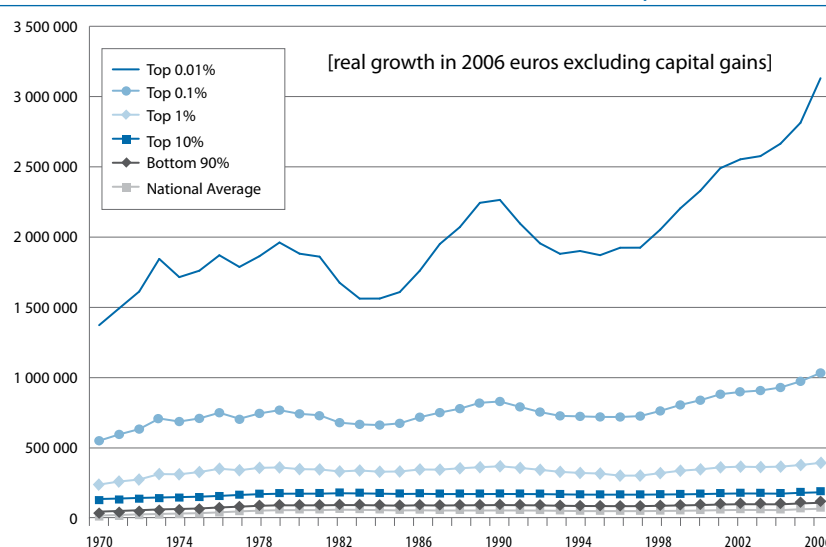
During the last decade, the most significant changes have been seen at the top of the income distribution, with the very rich becoming much richer than others. Between 2004 and 2007, the income of the top 0.1% increased by 40%, while the top 10% increased their revenue little more than the population average (Solard, 2010). Still, even the broader top, the ten percent of the population with the highest income is getting clearly richer - between 2005 and 2009, when the bottom 9/10 of society had been losing income share, while the top 10% increased its share

Chart 35: Percentage point changes in income shares of the deciles, France, 2005-2009



Source: Eurostat EU SILC. Note: break in series in 2008.

Chart 36: Growth of declared taxable income in France, 1970-2006



Source: Landais (2007) Note: Real growth in 2006 euros excluding capital gains.

from 22.9% of total income to 25.1%. Looking at a longer term time series, the pattern is even more pronounced. In this sense, France seems to be following the pattern found much earlier in the US and the UK.

Political measures just after the crisis as well as the introduction of the 'revenue de solidarité active' and more generally the stabilising impact of the social protection system have contributed to limit the impact of the crisis to some extent. Nevertheless, the poorest remain the most hit, and the income of the lowest decile, with a higher proportion of unemployment benefits and less earnings, has only slightly decreased (-0.1% in real

terms in 2009 recession year), while the highest half of the revenue distribution has increased. (Insee 2011).

### Poland

Following the transition, economic expansion brought higher inequalities, but it improved the material situation of households.

In the 1990s, the transition shock and the ensuing economic expansion in Poland brought higher income inequalities, especially above the median income. Different factors led to increased inequality, including the education level, unemployment, and different situation of urban as against rural areas



(larger cities correspond to higher average income level). However, the improved material situation of households is one of the reasons for the decrease in income inequalities observed since 2005, bringing Poland closer to the EU average.

A major recent survey<sup>(4)</sup> of social conditions and lifestyles carried out in more than 12 000 Polish households shows historically high levels of economic optimism, life satisfaction, and material prosperity. The poll also confirms the positive macroeconomic figures (sustained growth and relatively low unemployment) and draws a picture of a nation spared by the economic crisis, with less than one-third of respondents feeling affected by the crisis, and over 80 % of respondents rating the past year as successful. Unemployment, which reached 20 % at the moment of Poland's entry in the EU has fallen steadily to reach a low of 9 % in June 2011.

Sizable labour migration of the Poles to the Western countries of the EU, notably the UK, Ireland, and the Netherlands has certainly contributed to the reduction of the unemployment rate. The 2011 survey testifies to a historical success of the economic transition with only 26 % declared themselves as not having stable revenues allowing them to afford current needs compared to as many as 74 % in 1993. The system of social transfers, which is credited with keeping the income inequalities from rising excessively during the most

challenging years of the transition into the market economy<sup>(5)</sup>, has now been compromised through the budgetary constraints and the subsequent cuts in social spending. The 'Social diagnosis' data indicate a clear growth of inequalities at the tails of the distribution: the income of the bottom decile households going down by 23 %, while the income of the top decile rose by 24 % between 2011 and 2000. This striking change is poorly reflected in the Gini coefficient which remains insensitive to such changes.

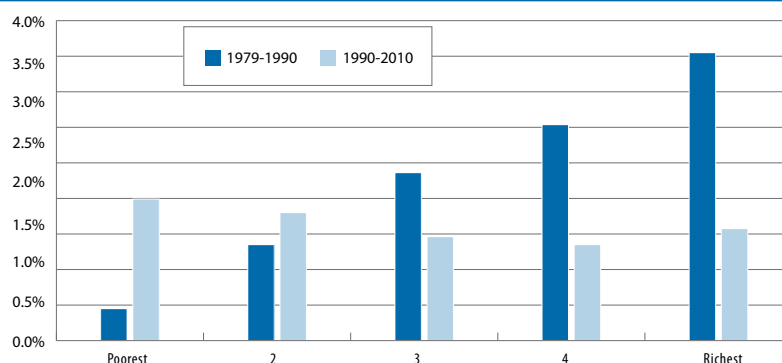
### United Kingdom

After a strong increase in income inequalities in the 1980s, improved redistribution through the tax-benefit system has partly mitigated the sharp polarisation of earnings. The redistributive impact of in-kind benefits is also above the EU-average and grew strongly during the late 2000s.

After being flat in the 1960s and 1970s, UK income inequality increased very rapidly in the 1980s, the Gini indicator rising from 0.25 to around 0.34, turning the UK from one of the most equal countries of the EU-15 into one of the most unequal. This was a result of a combination of factors: higher rates of household 'worklessness', meaning a growing polarisation between households with two earners and those with no one at work; rising income disparities as high income increased while low incomes stagnated, union power was curbed, and demand for low skilled labour declined; as well as benefit cuts and simultaneous tax cuts for top income earners. (Hills et al., 2009)

Between 2000 and 2009, income equalities remained rather unchanged. In 2009, the Gini coefficients stood at 32.4 (EU-27: 30.4) while the S80/S20 income share ratio is 5.2 (EU-27 4.9).

Chart 37: Annual real income growth by quintile group in United Kingdom



Source: Jin et al., 2011 (recalculated)

(4) The survey in question is called 'Diagnoza społeczna' (Polish for 'Social Diagnosis') is a large scale inquiry into the social conditions of the Poles and has been co-financed by the European Social Fund and the National Bank of Poland, first carried out in 2000. The 2011 wave is the 6th in a sequence and was carried out in 12 300 Polish households. Full report shall be published in December 2011 on [www.analizy.mpips.gov.pl](http://www.analizy.mpips.gov.pl) (The Polish Ministry of Labour and Social Policy).

(5) Anna Kurowska: 'The dynamics of income inequality in Poland in a comparative perspective – major conclusions from research and statistical data' p. 7, Institute of Social Policy Working Analyses and Papers 2/2011, University of Warsaw, [http://www.ips.uw.edu.pl/doc\\_download/201-analizyips-22011-en.html](http://www.ips.uw.edu.pl/doc_download/201-analizyips-22011-en.html)



Government expenditure plays a role in mitigating income inequalities. Social protection expenditure as share of GDP has slightly decreased between 2000 and 2008 standing at 22.7 % (2000: 25.5 %), and was lower than the EU-27 average reaching 25.3 % in 2008.

In the UK there is a much stronger correlation between educational achievement and socio-economic background than in most other EU countries (OECD, 2010). A further key challenge for the UK is the significant proportion of children living in jobless households: at 17.5 % this is the highest level in the EU, where the overall average is 10.2 %.

Although redistribution was reduced, some government inter-

ventions had a mitigating effect on inequalities and also reduced poverty, especially poverty among children living in lone-parent families, in two-parent households, and in pensioner households. Notably, new childcare policies introduced in the late 1990s also played a role by giving parents easier access to public day care places and thereby, to the labour market – and helped to reduce the fraction of children in poverty (before housing costs) from 26.7 % in 1996–1997 to 19.7 % in 2009–2010. (Data from Jin et al., 2011)

During the 2008 recession average living standards were maintained, supported by large increases in benefits and tax credit rates and, compared to 2008, the 2009 Gini

indicator as measured by EU-SILC also decreased somewhat. Furthermore, it is likely that the increase of the top income tax rate in 2010 also had an alleviating effect on inequality – while cuts in government expenditure, may have an increasing effect.

The UK experience in the 1980s and 1990s demonstrated that there is no guarantee that a rapid growth of living standards at the top will trickle down to those at the bottom. On the other hand, government policies aimed at education, strong financial incentives for people reliant on social welfare to take up work, employment assistance, viable child care provision, redistribution, and higher taxation of the top incomes can contribute to alleviate inequalities.

## 6. CONCLUDING REMARKS

This chapter has discussed the current situation of income inequality in the European Union with a focus on changes in inequality and factors explaining changes and mechanisms of redistribution. In general, in the period 2005-2009 we see a certain convergence in the inequality levels in the EU. Some of the more unequal countries have shown positive signs of reducing inequalities as their social systems have matured, while more equal countries, the Nordic countries among them, have witnessed signs of increasing inequality. This happened while long-term inequalities were on the rise, and the growth of very high incomes continued. The last three decades have seen a significant increase in incomes of the richest segments of society in many developed economies. The fragmentary data available suggest the concentration of income – and the wealth and power that go with it – is now reverting to levels not experienced since the beginning of the 20th century.

In the absence of up-to-date data, the impact of the global economic crisis of the past years is still not clear. Earlier evidence suggests that while crises can lead to reductions in inequalities, these tend to be short

lived, with inequalities often rising rapidly once the crisis is over.

What the crisis has done has been to change perceptions of inequalities and to put the question of fairness back on the political agenda. All over Europe people feel – according to Eurobarometer and other polls – that the level of inequality is excessive and that economic problems and increasing rates of unemployment can worsen the situation even further.

This underlines the need to build on a more inclusive growth as envisaged in the Europe 2020 Strategy. The global recession demonstrates that years of economic growth have not necessarily produced all the results wished for, and that many of the jobs created were often precarious and informal. And in so far as part of that growth was based on unsustainable financial foundations and environmental degradation, it did not offer equal opportunities for people.

Government transfers, the tax system, and public services have not always been able to mitigate the rising earnings inequality, as shown in this chapter. Moreover, in the face of forthcoming budget cuts and the growing pressure of an ageing population, the system might fail to work as efficiently as it has before. Additionally, many of the drivers of increasing market inequality, and the factors influencing

household income inequality, are becoming too strong for the current social policies to tackle.

The analysis shows, however, that there is room for improving the effectiveness of welfare state in mitigating inequalities through efficiency gains and improvements in the structure of social spending, and not only through raising expenditure. In some EU countries the same expenditure (as % of GDP) can go with three times as big a reduction in income inequality. This suggests clear efficiency reserves in better policies aiming at reducing inequalities – even if the incentive effect and general impact of programs also have to be considered.

Changes in inequalities as well as uncertain public perceptions call for further research:

- Firstly to understand better why our societies are becoming more unequal
- Secondly to analyse the consequences of them becoming more unequal
- And thirdly to analyse how different policies impact on inequalities in order to better assure prosperity, promote fairness, prevent social conflicts, and maintain the stability of our societies.

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# Patterns of poverty and social exclusion in Europe

## 1. INTRODUCTION

In June 2010, the EU governments committed themselves to reducing poverty and social exclusion in Europe by 20 million people by 2020 – a target that represents an important step forward for the EU as a whole. This is also one of the main objectives of the Europe 2020 strategy.

The target population is based on a combination of three indicators: the number of people considered at risk of poverty; the number of severely materially deprived persons; and the number of people below 60 years of age who are living in households with very low work intensity. Some 114 million Europeans are part of one of these groups in 2009, and are thus considered at risk of poverty or social exclusion.

The added value of this measurement is that the risk of poverty and social exclusion extends the original concept of relative income poverty to cover both non-monetary dimensions of poverty and situations of exclusion from the labour market. This reflects the EU ambition to tackle poverty through an integrated strategy, as promoted by the European Commission for the past several years. Complementing the analysis of monetary poverty with other dimensions is crucial in helping governments to fine-

tune their actions and to develop effective strategies to improve their redistributive policies and promote active inclusion.

This chapter describes in detail this aggregate indicator and its components, and discusses the reasons why they have been chosen. It also presents the most challenging forms of poverty that we face in the EU, and describes the profile of the most-at-risk subgroups of the population.

## 2. A SET OF THREE INDICATORS TO DESCRIBE POVERTY AND SOCIAL EXCLUSION

In 1975, the European Council had defined the 'poor' as *'those individuals or families whose resources are so small as to exclude them from the minimum acceptable way of life of the Member State in which they live.'* This definition is rooted in research and political works aiming at defining poverty in developed countries. In these countries, the aims of government go beyond ensuring minimum subsistence levels for their citizens to ensuring that all citizens benefit from the general level of prosperity of the society. According to the original EU concept, poverty

is relative, graduated, and multidimensional. This concept differs from the United Nations definition of 'deprivation of basic human needs' (United Nations, 1995) that has been seen as most appropriate for measuring poverty in developing countries, or of concepts such as an 'accumulation of disadvantages that is beyond reach of macro-economic policies' (Dahrendorf, 1990), or of 'permanent dependence on the State' (Engbersen, 1991).

### 2.1. A multifaceted indicator to go beyond a monetary approach

There is now wide recognition that poverty is a multidimensional phenomenon (Kolm, 1977, Atkinson and Bourguignon 1982, Bourguignon, 2003) and that the use of a multidimensional indicator helps to reflect the multiple facets of poverty and exclusion. Such indicators have been widely supported by research work (Förster et al., 2004, Layte et al., 2000, Förster 2001). This chapter provides evidence showing that the various forms of poverty and social exclusion that the Member States face are better described by a three-dimensional index than by a single-dimension one, and that, as a policy tool, it better reflects the diversity of situations and priorities across Member States in an enlarged EU.



**Box 1: The EU SILC survey, an integrated tool to measure the risk of poverty and social exclusion across Europe**

SILC (Statistics on Income and Living Conditions) is a household survey, covering the 27 EU Member States since 2007. It is the reference source at EU level for statistics on income and living conditions and for common indicators for social inclusion in particular. This unique survey enables the measurement of the risk of poverty, material deprivation, and work intensity. This important property makes it possible to observe whether the indicators occur together or not for given individuals. The sample size exceeds 400 000 individuals.

The EU SILC measures in detail the total household disposable income. It has to be borne in mind that the income reference period is a fixed 12-month period (such as the previous calendar or tax year) for all countries except the UK for which the income reference period is the current year and Ireland for which the survey is continuous and income is collected for the last twelve months. In the so-called 'register countries' (Denmark, Norway, Iceland, the Netherlands, Sweden, Finland, and Slovenia), most income components are obtained through administrative registers.

Material deprivation is observed through a series of questions on the lack of each item of a list of 9 and the enforced nature of that lack. The extensive list of these items is: pay the rent, mortgage or utility bills (1), keep the home adequately warm (2), face unexpected expenses (3), eat meat or protein regularly (4), go on holiday (5), cannot afford to buy a television (6), a washing machine (7), a car (8), or a telephone (9). There is no special reference period (present time).

Work intensity is observed through a retrospective calendar based on the previous year excepting the UK and Ireland for which the reference period for work intensity is similar to income reference period. Individuals are invited to self-assess their position on the labour market. All this information can be linked to household data.

The monetary poverty component is a measure of *relative* poverty indicating the proportion of people with an income below 60% of the national median income, which varies both between countries<sup>(1)</sup> and over time. This relative measure is clearly relevant for monitoring poverty, and the at-risk-of-poverty rate remains the agreed main headline indicator used to quantify poverty at the EU level. Following its endorsement by the European Council in 2001 in the context of the Laeken indicators of social inclusion, it has been used in various EU processes (the Social Open Method of Co ordination, the Lisbon strategy) and is also widely used by national governments and by the OECD. The at-risk-of-poverty rate is particularly useful for monitoring the impact of employment and redistribution policies aimed at its reduction.

However, relative measures have shortcomings when used for international comparisons, or when shocks bring big changes to the threshold as has happened during the crisis (see below). The increased political focus on the definition of the target has highlighted these weaknesses and encouraged the use of absolute poverty thresholds to help provide a fuller picture (Förster et al., 2004).

Options to define absolute poverty thresholds based on budget standards are explored (European Commission, 2011) although such indicators are still a long way from being implemented as monitoring tools.

In this context the second and third components of the indicator underpinning the EU target indicator provide *absolute* measures of poverty, and cover broader aspects of social exclusion. Severe material deprivation is defined in terms of the lack of nine essential items. The list of items, as well as the threshold of 4 'lacks', remains the same across countries and remains stable over time (until the list of items is reviewed). In the same way, very low work intensity households (or jobless households) are identified on a common basis, with an absolute threshold common in space and time.

Severe material deprivation and very low work intensity indicators also have the advantage of setting EU-wide common thresholds that are appropriate for 'Social Europe' as a whole (see below)<sup>(2)</sup>, which is not the case with the 'risk of poverty' which is defined in terms of national thresholds.

The following subsections discuss each of these dimensions separately. Special attention is paid to the added value they bring to globally agreed targets, as well as the methodological choices leading to their final definition. Then their articulation is discussed, as well as their further possible developments.

## 2.2. Shortcomings of at-risk-of-poverty rates based on national thresholds are revealed at times of crisis

The at-risk-of-poverty measure counts the number of people whose disposable income is below 60% of the median equivalised income<sup>(3)</sup> of their country. The 60% value for the threshold has been largely used since

(1) For example it ranges in 2009 from €2 700 to €40 000 a year for a household of 2 adults and 2 children younger than 14 (source: Eurostat EU SILC).

(2) Combining the relative monetary poverty definition with the absolute material deprivation indicators has been explored by Förster et al. (2004) among other options, and is considered as the best option to apprehend poverty and social exclusion in an enlarged Europe.

(3) Equivalised income is a measure of household income that takes account of the differences in a household's size and composition, and thus is equivalised or made equivalent for all household sizes and compositions. The equivalised income is calculated by dividing the household's total income from all sources by its equivalent size, which is calculated using the modified OECD equivalence scale. This scale attributes a weight to all members of the household: 1.0 to the first adult; 0.5 to the second and each subsequent person aged 14 and over; 0.3 to each child aged under 14. The equivalent size is the sum of the weights of all the members of a given household.

its choice ten years ago at the Laeken European Council. The choice of 60 % instead of 50, 40, or even 70, as was sometimes done before, remains an issue for discussion, however. Atkinson, Marlier, and Nolan (2004) report that the choice is fairly arbitrary and mainly designed to ensure continuity with the previous indicator, and they recommend maintaining monitoring indicators based on these other thresholds in order to capture the shape of the income distribution around the 60 % threshold. In fact the poverty measurement is sensitive to the threshold value because of variations in income distributions (see Chart 1) with, for example, accumulation of individuals around the middle earnings position resulting in significant variations in the poverty rates.

The use of national thresholds has often been questioned, especially in the context of an enlarged Europe. Indeed, the relative risk-of-poverty measure 'reflects the experience of income deprivation within European countries and leaves aside income gaps between countries. [...] Taking the Member States as reference, society reflects the fact that social policies are decided on the country level while on-going European integration builds an argument for using "Europe" as the reference society' (Förster et al., 2004).

Treating the EU as a whole does indeed imply the need for a *common threshold* defined at the EU level, and the idea has been explored in several papers (for example European

Commission 2007, 'Comparing Poverty Indicators in an Enlarged EU' Wheelan and Maitre 2010, Förster et al. 2004, European Commission 2011).

The European Commission (2007) estimated that around 100 million Europeans in 2004 lived under a poverty threshold defined at the EU-level (estimated at €22 a day), and that some 23.5 million had to get by on less than €10 a day, and nearly 7 million on less than €5 a day.

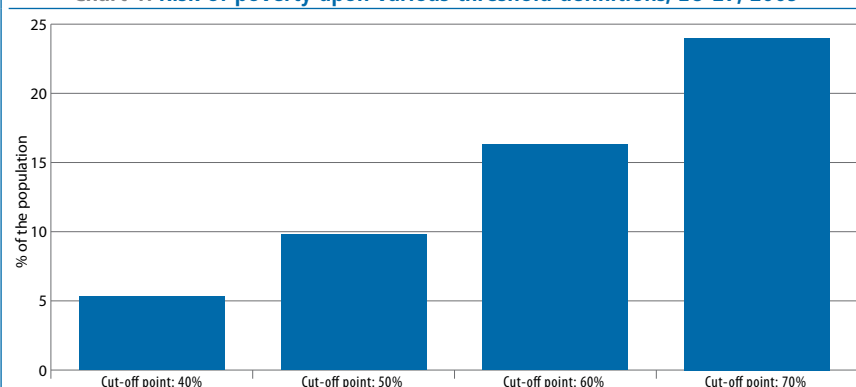
Förster et al. (2004) compared the distribution of poor people defined on a national-threshold basis and on a European common threshold-basis. The study was based on the EU-15 plus Hungary, the Czech Republic, and Slovenia. The authors estimated that setting up national poverty lines results in an estimate of 60 million poor people, two-thirds of whom would be living in the four largest Member States (France, the United Kingdom, Germany, and Italy). However, with a common poverty threshold, the distribution of poverty 'changes dramatically' with 74 million poor people, of whom only half of them would live in the four largest countries.

Finally, the European Commission (2011) estimates poverty rates based on a common poverty line similar to the US threshold (see Box 2). The results 'look much more like the distribution of extreme poverty you might expect in the EU. The EU-15 and Slovenia have much lower poverty rates than the risk-of-poverty rate. The EU-10+2 have much higher rates'.

One drawback of the risk of poverty indicator is its ambiguous evolution in periods of rapid growth or of crisis. Indeed, the risk of poverty depends on the poverty threshold, which is determined by the general level of income and its distribution in the whole population. This threshold may change from one year to another as individual incomes change. This is especially the case when an economic crisis occurs. After the shock, the various types of revenue are not hit at the same time nor to the same extent by the crisis. Work incomes are generally the first to decrease as the situation on the labour market get worse. But other incomes, such as pensions and social benefits, do not adjust immediately<sup>(4)</sup>. As the highest incomes decrease while the others remain unchanged, the global income distribution changes. The median income, and therefore the poverty threshold, falls. People earning an income slightly below the poverty line may then move above it even though their situation has not changed or may even have worsened.

This phenomenon is clearly apparent in some recent statistics. Available data currently show that poverty thresholds fell by 17 % between 2008 and 2009 in Latvia, 16 % in Lithuania, and 2 % in Ireland<sup>(5)</sup>. Statistically, this fall in the poverty thresholds has led to apparent decreases in the risk of poverty by 4 percentage points in Latvia, 5 percentage points in Estonia, and stagnation in Lithuania and Hungary<sup>(6)</sup>.

Chart 1: Risk of poverty upon various threshold definitions, EU-27, 2009



Source: Eurostat, EU SILC (ilc\_li02)

(4) A recent report from Jenkins et al. (2011) based on EU SILC data, shows that this is exactly the current situation in Ireland. The study shows that the population is not uniformly hit by the crisis. Pensioners aged 60 or over saw increases in their income, while adults of working age and children have seen a decline of their income of 3 to 6 percentage points.

(5) Reference years 2008 and 2009 refer to SILC data 2009 and 2010 (ilc\_li01).

(6) See also the case of France, where the latest data are already available. 'Les niveaux de vie en 2009', Insee Première No1365 - August 2011.

## Box 2: Absolute poverty measures in the United States and Italy

The use of absolute poverty measures is widespread among poor countries. The World Bank, for example, uses poverty rates based on \$1/\$1.25/\$2 a day thresholds, where those thresholds are generally based on food-energy-intake and cost-of-basic-needs estimations (Ravallion, 2010, European Commission 2011).

Absolute poverty measures in developed countries are much less widespread. The United States traditionally uses them, as well as Canada and Australia and, in Europe, Italy has had a revised version of an absolute poverty measure since 2005.

In the United States, absolute poverty thresholds were developed by the Census Bureau in the 1960s, based largely on estimates of the minimal cost of food needs, to measure changes in the poor population. The thresholds are estimated on the basis of the minimum food-needs, multiplied by a factor of three to cover housing expenditure and clothes<sup>(1)</sup>. They are adapted to age and household characteristics to cover up to 48 various situations. For example, a family of five members with two children, their parents, and a great-aunt will be considered as poor in 2009 if their income is less than \$26 245 a year. The official poverty thresholds do not vary geographically, but they are updated for inflation using the Consumer Price Index.

However, this indicator is in debate as the standard of living in America has changed since the threshold was fixed in the 1960s. A supplemental poverty measure is currently under process and should be published in the autumn of 2011<sup>(2)</sup>. This alternative measure is not intended to replace the official poverty measure, but is intended to explore new definitions of poverty thresholds. The new threshold is established on the basis of expenditures on a set of commodities that all families must purchase: food, shelter, clothing, and utilities. The expenditures of a family which is not poor, but under the median will be used as a reference. Among main improvements, the calculation should integrate in-kind benefits in resource definition and various thresholds depending on the housing status (renters/owners with a mortgage, and owners without a mortgage).

Istat, the Italian statistical Institute, disseminates absolute poverty estimations for the households residing in Italy, based on Household Budget Survey data. The absolute threshold is computed on the basis of the minimum spending necessary in order to acquire the basket of goods and services considered as essential.

This threshold varies upon household composition with special attention to detailed age classes, regional location, and the size of the city. It is updated based upon *local* price indexes for goods and services. For example, the monthly absolute threshold for a couple ranged in 2008 from €1 037 a month in a densely populated area in the North to €728 a month in small cities in Southern regions. The relative poverty threshold was set at €999.70. In 2008 the absolute poverty rate was equal to 4.9% whereas the relative poverty incidence was 13.6%.

(1) The coefficient has been set as 3 as it was estimated that food expenditures covered about one-third of total expenditure at that time.

(2) See [http://www.census.gov/hhes/www/poverty/SPM\\_TWGObservations.pdf](http://www.census.gov/hhes/www/poverty/SPM_TWGObservations.pdf) quoted by European Commission (2011) for more detail.

For such reasons, the use of budget standards methods to define poverty thresholds is quite interesting. These methods rely on poverty thresholds defined with reference to a basket of goods and services that are considered as necessary to reach an acceptable standard of living. However, the choice of threshold remains a matter of concern and raises ethical issues, especially if the basket of necessary goods is defined

in a normative way. Who decides what is essential? Political considerations may come into the play, especially if the basket of goods is used as a reference point in determining the level of social benefits.

The European Commission (2011) suggests that methods based on the mobilisation of focus groups and experts usually produce quite 'generous' baskets of goods, leading thresholds

'to be at or above relative poverty thresholds'. For example, experiences in developing budget standard in the UK, Belgium (Flanders), and Austria resulted in amounts above the 60% of median income threshold. In other cases, especially when the purpose is to set a level for minimum income, experts and parliamentary committees tend to come to much more 'parsimonious' baskets (e.g. the Netherlands, see Table 1). In practice the implementation of such methods in a transnational comparative setting can raise important technical problems since the basket of goods has to take account of a variety of individual situations, and reflect very different consumption patterns across the EU. Ensuring that the thresholds really do measure comparable situations of hardship would require developed consumption data and prices, harmonised at the EU level, which the current EU framework for household budget surveys does not yet provide.

Table 1: Budget standard examples for a single person of working age

	UK Minimum Income Standard 2008	Netherlands NIBUD budget 2008	Ireland Vincentian 2006	Flanders CSB 2008
€ppp per year 2007 prices				
Food	2 499	1 761	2 949	1 604
Clothing	473	522	723	414
Fuel	558	881	327	1 107
Rent	3 240	3 403	2 921	4 169
Total necessities	6 770	6 566	6 921	7 294
Total budget	13 018	8 599	15 039	10 129
€ppp per year 2008				
Relative threshold	11 126	11 485	10 901	"10 046 (Belgium)"

Source: 'The measurement of extreme poverty' – European Commission (2011) and Eurostat (ilc\_li01)

### 2.3. Material deprivation complements income-based approaches

In 1985 the European Council defined poverty in a slightly different way compared with the 1975 definition quoted below, indicating that 'the poor should be taken to mean persons, families, and groups of persons whose resources (material, cultural, and social) are so limited as to exclude them from the minimum acceptable way of life in the Member States in which they live'. This implies that direct measures of poverty (related to consumption or access to resources) should complement indirect approaches (i.e. income-based measures).

However, while the first theoretical framework of direct measures of poverty dates from the late 1970s and early 1980s, based on Townsend's seminal works, the use of this type of indicator by research workers and official compilers of statistics is much more recent (2000s for research work, and 2009 for official use), reflecting the huge amount of harmonisation and technical developments that had taken place (Townsend, 1979) as well as political obstacles to be overcome.

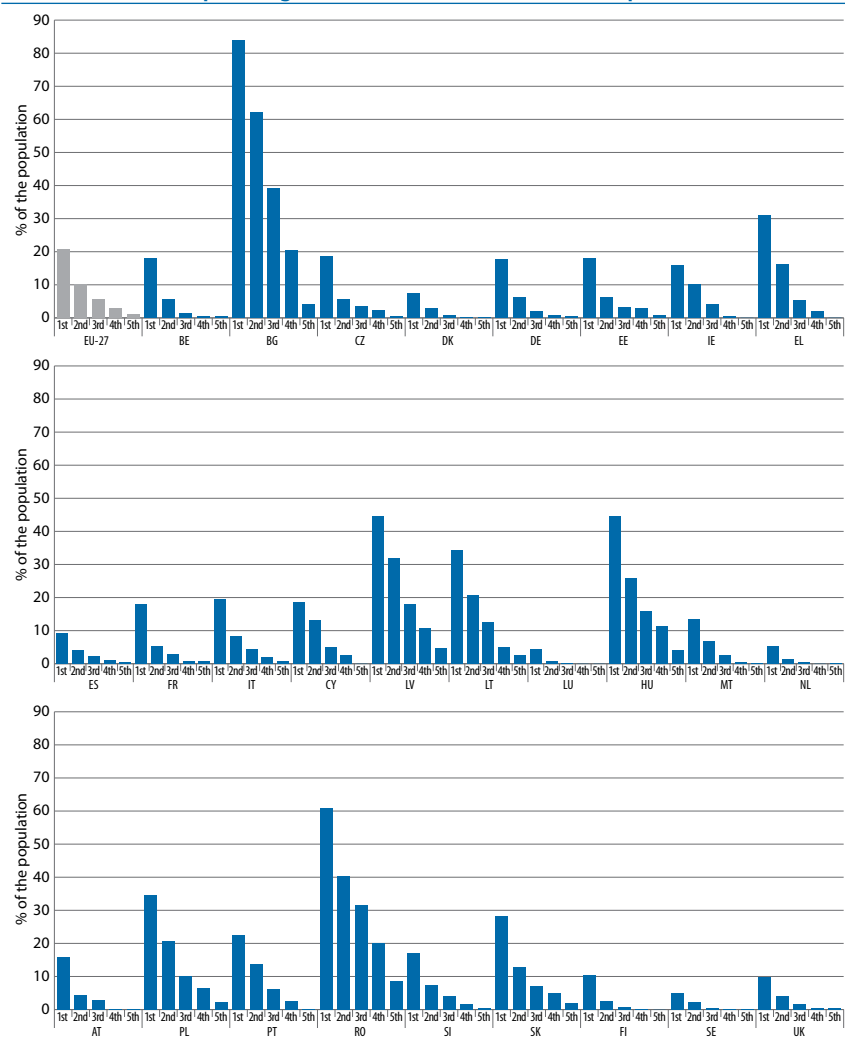
The current definition of material deprivation in the European poverty target speaks of an *enforced* lack of 4 items on a list of 9. These 9 items are themselves divided in two sub-dimensions, called 'economic strain' (the 5 first items) and 'durable goods' (the 4 last items). The list covers the ability/inability to:

1. pay the rent, mortgage, or utility bills
2. keep the home adequately warm
3. face unexpected expenses
4. eat meat or protein regularly
5. go on holiday
6. not being able to afford to buy a television
7. not being able to afford to buy a washing machine
8. not being able to afford to buy a car
9. not being able to afford to buy a telephone.

This definition calls for discussion with respect to several points. First, individual preferences have to be taken into account, to ensure that people living without a TV set by choice, for example, would not be considered as deprived. As pointed out by Fusco et al. (2010), 'it is essential to stress that the focus on material deprivation [...] is not on the lack of items due to choice and lifestyle preferences but on the enforced lack – i.e. that people would like to possess (have access to) the lacked items but cannot afford them'. In practice the EU SILC questions related to each deprivation items are designed to enable a distinction to be made between the 'lack' of an item and its 'enforced lack'.

The contents of the list itself also deserve attention. As developed by Guio (2009), the list is very close to the original proposals of Townsend (1979). The theoretical EU SILC list of items has, however, been validated in practice in empirical studies that follow the methodology proposed by Mack and Lansley (1985). These authors suggested identifying relevant items by collecting the views of people around which 'social perceived necessities' are constituted. On that basis the Eurobarometer 2007 survey investigated whether the items were considered as essential by the population and Dickes et al. (2008), and Fusco et al. (2009) report that almost all items were considered as necessary by at least half of the population.

Chart 2: Income quintile gradient of the severe material deprivation rate, 2009



Source: Eurostat, EU SILC (ilc\_mdd13)

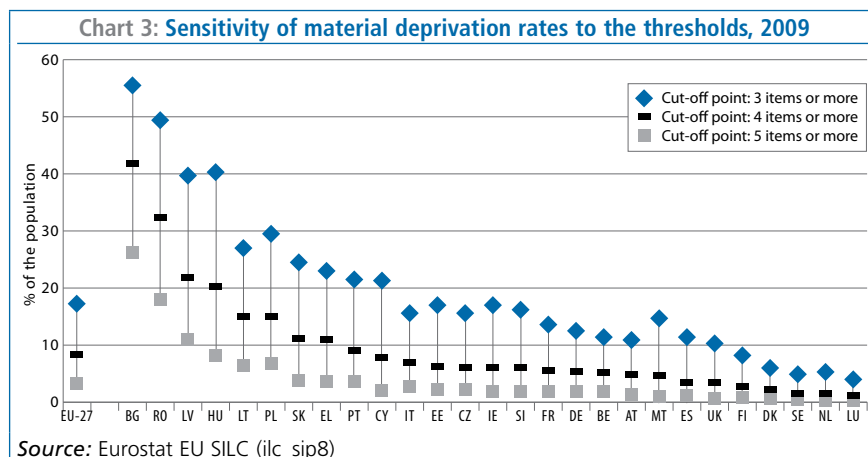
Besides confirming the social recognition of the necessity of the items, an important property for the selected items is to avoid an automatic selection of specific subgroups. For example, low public amenities and limited access to public transport, which were considered as potential candidates at the beginning, were seen to be too closely related to a specific urban population and were left out. The absence of 'lack of computer' in the list is also frequently noted. As developed by Guio (2009), this item appears to reflect significant differences between age/education groups (and was, moreover, not considered as necessary by half of the population).

Apart from these selection criteria, items must also be useable in terms of identifying a 'poor' population. Chart 2 shows that the discriminatory power of severe material deprivation largely decreases with income quintiles.

However, the list represents significant progress even if more work still needs to be done. First, as discussed in Förster et al. (2004), the diversity of situations within Europe make some items much more relevant in some new Member States than in existing ones, with the TV set being quoted as an example.

Beyond these considerations, there is the issue of the development and enlargement of future deprivation indicators into more ambitious areas in order to embrace all aspects of social inclusion. Access to culture, education, transports, and participation in the knowledge society could be integrated in forthcoming steps (see section 3 for a further discussion on these aspects) where some concrete advances were made in the EU SILC ad hoc module of 2009, which explored a wider list of items, with the active research support of Eurostat.

Apart from the content of the item list, the relative importance and weights of each item within



the list also deserves consideration, including issues such as whether the weight could be allowed to vary between countries or be common across the EU. Guio (2009) has raised all these questions in some detail and explored various options for weighting the items (prevalence, national preferences...) but concluded that the unweighted option is best, not least since different weighting options did not appear to affect the overall results. Moreover, weights can change with time, and weighting options could lead to counter-intuitive situations, in which a person lacking fewer items might be more deprived than a person lacking more items, if the former's items were more highly weighted.

The threshold of four items to depict severe material deprivation has been chosen for a mixture of empirical and practical reasons since a previous threshold of 3 items had resulted in excessively high, and politically unmanageable, estimates of levels of deprivation across the EU (see Chart 3).

## 2.4. Tackling poverty and social exclusion through labour market attainment

Including information about social participation in a risk-of-poverty or social exclusion objective is seen as crucial in the context of the Europe 2020 strategy. Indeed, the agreed

phrasing ensures that 'benefits of growth are widely shared and the [poor] ... are enabled to *take an active part in society*' is the reason that tackling job market exclusion has been integrated in the actions to reduce poverty and social exclusion. Indeed, seen from a labour market perspective, it is widely recognised that 'having a job remains the best safeguard against poverty and exclusion' (European Commission 2010).

It can be argued, of course, that this form of social participation is not the only way of taking an active part in society, and that domestic tasks, volunteering, and political or cultural engagement can be equally relevant ways of pursuing social integration and inclusion. Equally, however, it can be argued that more attention should be paid to the social environment in which poor people may find themselves, whether this concerns exclusion from social benefits (pensions, public healthcare), absence of family or other social relationships, or lack of access to public transportation or public facilities such as libraries, social centres, etc.

These various forms of social exclusion are difficult to capture through the kinds of quantitative indicators that are favoured in official policy monitoring. However, recent modules of the EU SILC survey have explored such issues as banking exclusion and social participation, and these could be used as a basis for developing more complementary indicators.



In Australia, the independent Social Inclusion Board identified indicators to cover social inclusion in five fields: poverty and low income; lack of access to the job market; limited social support and networks; the effects of the local neighbourhood; and exclusion from services, all described through 31 indicators (Saunders, 2010). Abe (2010) likewise explores the possibilities of covering such dimensions in Japan, and includes issues of social relations and exclusion from institutional systems beside the more traditional concerns about material deprivation and income poverty. Nevertheless, developing the measurement of these aspects to the point where they can be turned into acceptable indicators is challenging and will, no doubt, require further research effort.

In the meantime, however, labour market inclusion is still seen by many as the most important way of pursuing social inclusion, with the emphasis on identifying what is needed in order that the household can improve its capacity to meet its own needs. The European Commission has widely commented in that sense during recent years, particularly working with the Member States through the Open Method of Coordination. Communications of 2005<sup>(7)</sup>, 2006<sup>(8)</sup>, and 2008<sup>(9)</sup> all put the emphasis on labour market participation as a way of achieving social inclusion.

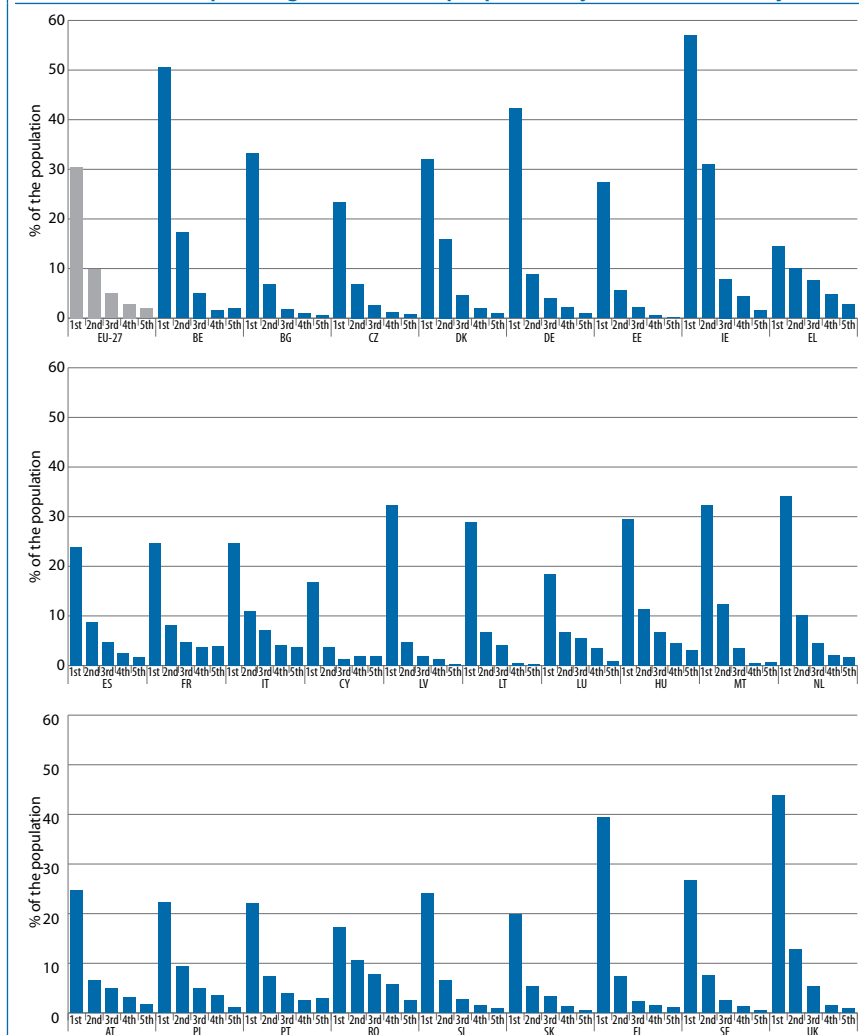
The 2008 European Commission's Recommendation (2008/867/EC) stipulates that if 'sufficient resources and social assistance remains a reference instrument for Community policy in relation to poverty and social exclusion, [...] new policy instruments have emerged. [...] One such instrument is the Open method of coordination on

(7) Working together, working better, COM(2005)706

(8) Concerning a consultation on action at the EU level to promote the active inclusion of the people furthest from the labour market, COM(2006) 44

(9) Active inclusion of people excluded from labour market, C(2008) 5737

Chart 4: Income quintile gradient of the people in very low work intensity, 2009



Source: Eurostat, EU SILC (ilc\_lvhl13)

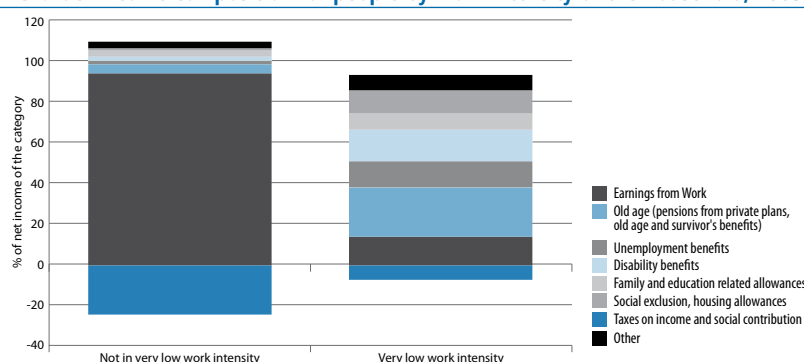
social protection and social inclusion (OMC), the objectives of which include the active social inclusion of all, to be ensured by promoting participation in the labour market and by fighting poverty and exclusion among the most marginalised people and groups. Another instrument is the European employment strategy, which aims, inter alia, to strengthen social inclusion, fight poverty, prevent exclusion from the labour market and support integration into employment of people at a disadvantage'.

However, the presence of job exclusion within the monitoring tool is not without controversy. At the EU level, very few researchers have explored the idea of combining income poverty and material

deprivation with exclusion from labour market. Nolan and Whelan (2011) suggest that the inclusion of this indicator distorts the usual social class gradient. Indeed, 'households with very low work intensity refers to the situation of people who live in households where nobody works (or work very little), but that are not necessarily living on very low income' (European Commission 2011). In this view, including labour market exclusion in a policy monitoring tool shows that there is a political will to 'monitor the efforts of Member States to combat labour market exclusion, including in its most severe forms'.

The agreed indicator of very low work intensity refers to the ratio between the number of months that

Chart 5: Income composition for people by work intensity of the household, 2009



Source: DG EMPL calculations based on EU SILC

Population: EU-27 total population aged 18-64

**Reading note:** incomes from work represent 17% of the net income of the household of people living in very low work intensity households and 112% of the net income of the rest of the population. Old age-related incomes (pensions, old age benefits, survivor's benefit) represent 30% of the gross income of the household of people living in very low work intensity households and 5% of the income of the rest of the population. For both populations (living or not living in a very low work intensity households), the sum of the components is equal to 100% (representing net income). 'Other' refer to taxes on wealth, inter-household transfers, interest repayments on mortgages, income from capital/rental of property.

all working age household members<sup>(10)</sup> have worked<sup>(11)</sup> during the income reference year, and the total number of months that could theoretically have been worked by the same household members.

The choice of a threshold at 0.2 was guided by several considerations. The first was the desire to capture situations where household members work so little during the year that they cannot expect to earn a living only from labour market participation. As is shown in Chapter 4, below the 0.2 threshold poverty rates tend to be very high, while above that threshold the risk of poverty tends to drop significantly.

Another consideration was to provide an approximate number for jobless persons that were close enough to the existing jobless household measure based on the Labour Force Survey (LFS)<sup>(12)</sup>. The definition of work differs between both sources, however. In the LFS, a household is considered 'jobless' if no one has worked during the past 4 weeks, irrespective of what happened before. The period under consideration in SILC is a whole year however, hence the criterion 'zero work' over 12 months would have a much stronger criterion than the LFS indicator. Finally, a work intensity of 0.2 corresponds to the situation of a work intensity lower than one day per week on average, or two and a half months per year, which is quite low.

People living in jobless households generally have lower incomes (Chart 4). However, around 10% of those living in jobless households in EU-27 live with income in the top three upper quintiles. This is mainly due to workers who have retired early, who are out of the labour market but aged less than 60 and therefore considered as jobless, and earn incomes in the highest income quintiles. Whether early-retired persons should be part of the target population or not belongs to the political debate. At the opposite

end, the income composition of those living in jobless households within the lowest income quintiles is clearly more benefit-dependant than other incomes with 15% on average of the gross income based on unemployment benefits, 18% on disability or sickness benefits, and 10% due to family or education related allowances.

## 2.5. Summarising the three dimensions: an 'and' or an 'or'?

The development of three main dimensions of poverty or social exclusion is progressing well, but the challenge of ensuring their full application in Europe remains. While several influential researchers may agree on the benefit of combining various dimensions when observing poverty, the question whether and if so, how, they should be aggregated is yet to be resolved. Ravallion (2011) questions whether it is realistic to envisage a single index measure of poverty, and suggests developing a credible set of multiple indices instead of a single one. However, the computation of a single indicator is an effective way of communicating in a political environment, and a necessary tool in order to monitor 27 different national situations.

The current definition of the risk of poverty or social exclusion at the EU level retains the incidence of *at least one* of the three dimensions to be considered as poor or socially excluded. This is what we could call a wider definition, as opposed to a more restricted one where a combination of the three indicators is required.

Förster et al. (2004) built an indicator in that stricter way, focusing on people both at risk of poverty *and* of being deprived. The authors argue that their concept of 'consistent poverty' 'does not claim to be able to include all people who should possibly be regarded as poor, [...] but emphasise a group of people with not only low incomes but who are highly restricted with central and basic goods and amenities'.

(10) A working age person is defined as a person aged 18-59, not being a student aged between 18 and 24. The households composed only of children, of students aged less than 25 and/or by people aged 60 or more are totally excluded from the indicator computation. Household members aged 60 or more are totally excluded from the indicator computation (even if they live with working age people). On the other hand, the pensioners aged less than 60 as well as the students aged 25 and more are considered as working age people and are therefore included in the computation of the household work intensity.

(11) For persons having worked part-time, an estimate of the number of months in terms of full time-equivalent is computed on the basis of the number of hours usually worked per week.

(12) See the Chapter 4 for a complete discussion of the labour market exclusion indicators.



An advantage of the wider definition is that it removes some of the obvious weaknesses of current indicators, not least with respect to their implied policy messages. For example, in the New Member States, the poverty thresholds are relatively low, and people above the threshold may not necessarily meet all their needs – in other words they are likely to be materially deprived and deserving of policy attention. At the same time, a jobless excluded household might also warrant policy attention, even if its income was above the poverty threshold, if it turned out to be excessively or un-necessarily dependant on social benefits.

### 3. STEPS FORWARD: IMPROVING THE MEASUREMENT OF POVERTY

#### 3.1. Improvements in income measurement

Since 2007, the income definition in the EU SILC has improved to the point that its income measurement now fulfils most of the recommendations of the international Canberra Group on the definition of household income, with various types of incomes now integrated (employee income, self-employment income, current transfers, private pensions plans) (Wolff et al. 2009).

The possible inclusion of imputed rents and other non-monetary income components as recommended by Canberra (interest paid on mortgage, value of goods produced for own-consumption, gross non-cash employee income) have been reviewed, but methodological issues persist that can significantly affect comparability. For example, imputed rents are sensitive to the size and characteristics of the private rental market. They are also sensitive, by definition, to the imputed value of houses, which is strongly affected by economic and financial conditions, notably in periods of crises (e.g. Ireland today). The component 'interest paid on mortgage' is also

sensitive to country differences in the practices for the reimbursement of loans (short term/long term).

Hence further progress is still needed in income measurement. The lowest incomes in particular deserve special attention, as 'for the lowest tail of the income distribution, the level of material deprivation is often not the highest' (Fusco et al., 2009), which is puzzling. Self-employment incomes might especially benefit from improvements as they can sometimes lead to inappropriate measures. Fusco et al. (2009) shows that self-employed people tend to present a higher risk of poverty and lower material deprivation. Research in the reference period for income could help in addressing that issue<sup>(13)</sup>.

#### 3.2. Taking in-kind benefits into account

The provision of in-kind services, such as childcare, is investigated by many Member States as a means to combat poverty. The free provision of such services has real and direct impacts on people's welfare and labour market participation. However, this is not adequately reflected in the current measures of poverty and social exclusion as the traditional measure of income inequality and poverty based on 'equivalised' disposable income does not reflect them (Marical et al. 2006; Smeeding et al. 2008; Vaalavuo 2011). In-kind benefits in income measures is an important matter of concern in order to address the lack of access to the resources necessary to permit minimum standards of living and participation in society (Nolan and Whelan 2007; Cappellari and Jenkins 2007).

Among in-kind benefits, healthcare and education are the most important in general, while personal social

services are, in the majority of countries, almost non-existent. An imputation of in-kind benefits on income (see the Box 3) shows that, in a large majority of countries, in-kind transfers are pro-poor. All in all, the bottom income quintile benefits more than the richest quintile, although the second or third quintile occasionally benefit the most from in-kind benefits.

Healthcare spending is quite equally distributed across income classes – though highly concentrated across individuals in a given year<sup>(14)</sup> – while education is slightly more progressive. The major exception to this egalitarian notion is with respect to early childhood education and childcare (see Chart 6).

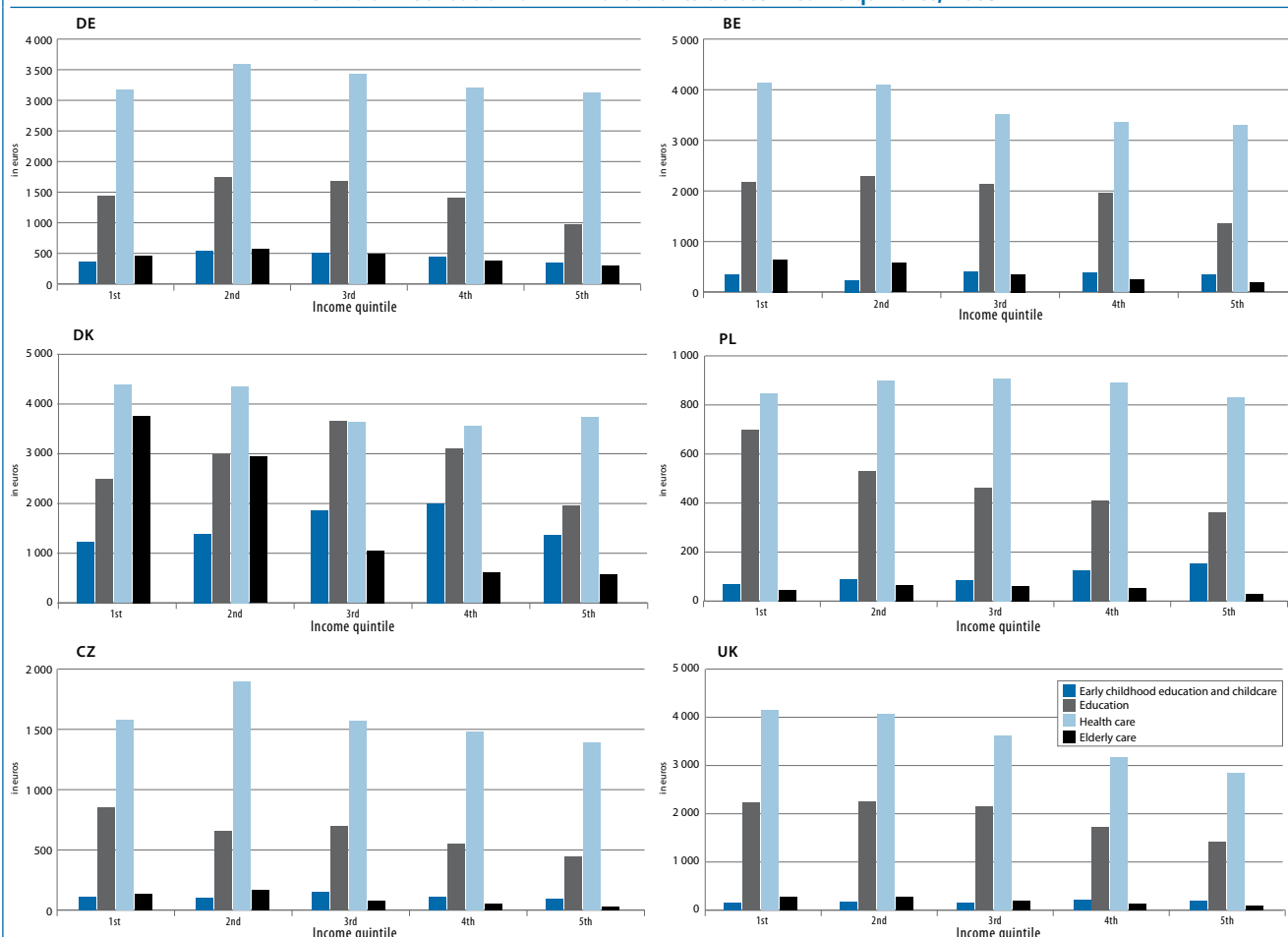
The socio-demographic structure of the society naturally affects the results. As the elderly are often generally economically worse-off than the rest of the society, it is normal that the spending on healthcare and elderly care goes, to a large extent, to the bottom income quintile. Similarly, the economic situation of families with children determines the shape of the distribution. As poverty rates for children and for the elderly are often above the average rate for whole population, public services that particularly benefit these two categories are more likely to deliver resources to the bottom end of the income distribution.

Nevertheless, in many cases, the resources devoted to early childhood education and childcare (ECEC) services are seen to benefit the rich more than the poor in half of the countries. Estimating the fairness of childcare benefits is not straightforward, however: do more affluent people have better access to publicly provided childcare services; or are they richer because of these services (and thus, have better access to the labour market)?

(13) A self-employed person could indeed earn an abnormally low-income during a given year even though he/she earns a significantly higher revenue on a medium-term period. Therefore, that person could be considered as poor for that year, but not necessarily materially deprived, as he/she benefits from savings or durable goods corresponding to higher income-level standards of living.

(14) See for instance the Joint Report on Health Systems prepared by the European Commission and the Economic Policy Committee, p.148, [http://ec.europa.eu/economy\\_finance/publications/occasional\\_paper/2010/op74\\_en.htm](http://ec.europa.eu/economy_finance/publications/occasional_paper/2010/op74_en.htm)

Chart 6: Distribution of in-kind benefits across income quintiles, 2009



Source: DG EMPL calculations based on EU SILC

### Box 3: In-kind benefits imputation method

This analysis focuses on the most important expenditure categories of the welfare state, namely early childhood education and childcare (ECEC), primary and secondary education, healthcare, and elderly care. Some other in-kind benefits, notably active labour market services, social housing<sup>(1)</sup> and public transport, are not integrated into this analysis.

In order to estimate the redistributive effect of public services, the standard approach in the field (Smeeding et al. 1993; Marical et al. 2006; for a more detailed discussion on various methodological issues, see Vaalavuo 2011) is followed. The monetary value of in-kind benefits is based on the 'cost of production', that is, on the public expenditure on the service in question. The spending is further divided by the number of users in order to calculate the value of the benefit for an individual beneficiary (see table).

The allocation of benefits to individuals varies according to the service. Imputation is based on real use when the data allows: that is, in the case of early childhood education and childcare as well as education for those above 16 years old. For the rest, the allocation of benefits is determined by age and, in the case of healthcare and elderly care, gender. This method, of course, omits many other factors that may influence the use of services: for example, educational level and income class are found to affect the use of healthcare services and the reliance on formal elderly care services depends for example on the marital status and availability of informal care. Chart 6 partly illustrates the magnitude of this data deficiency: we see that in all countries the people in the poorest quintile have a greater likelihood of not receiving healthcare.

(1) Some previous studies analysed the redistributive or poverty-reduction effect of social housing. As housing costs are usually the largest expenditure category in household budget, public policies that help families to meet these costs are obviously important. Housing allowances are taken into account in the disposable income as cash transfers but in-kind benefits, such as lower rent paid in social housing, are not automatically accounted for.

Przywara (2010) on future healthcare projections has calculated healthcare expenditures by age and gender, and disability rates reflecting the needs for elderly care are from the 2009 Ageing Report (European Commission, DG ECFIN 2008). Education for those below 16 years old is based solely on age as indicated in Eurostat data. Analyses are based on the EU SILC 2006 and 2009 data for 23 and 26 countries respectively.

#### In-kind benefits imputation method

	Value of in-kind benefit	Source	Allocation	Source
ECEC	Public spending on child day care	ESSPROS	Childcare at day care centre by hourly use	EU SILC
	Public spending on pre-primary education	Eurostat	Education at pre-school by hourly use	EU SILC
Education	Public spending on primary education	Eurostat	"For below 16 years old: Probability according to enrolment by age and ISCED level"	Eurostat
	Public spending on secondary education	Eurostat	"For above 16 years old: ISCED level currently attended"	EU SILC
Healthcare	Public spending on health care by age	DG ECFIN	Estimated spending for each age and gender separately	DG ECFIN
Elderly care	Public spending on old age in-kind benefits and long-term care	ESSPROS	Disability rates by age and gender for those above 65 years old	DG ECFIN

*Note:* Variable only for those above 16 years old. For this reason, the imputation is based on age only for those below this age.

In general, it can be argued that childcare services give parents the opportunity to choose between work and family, and make dual-earner-ship possible, while the availability of free or subsidised care can particularly help single-parents to escape poverty through paid employment. From a social inclusion and anti-poverty perspective, this implies that it is important, to design systems in ways that ensure that high-quality services are accessible regardless of the income level. Because parents pay some fees for childcare in most countries, user contributions need to be income-related so that the progressivity of the system is guaranteed and the day care option remains a good alternative for also those with potentially low earnings (see Chapter 4).

All in all, cash benefits cannot substitute for in-kind benefits as cash income still determines the level of economic autonomy of the household. However, the question of access to, and availability of, services is fundamental in terms of both research and policy. It seems that in-kind transfers benefit the poor to a considerable degree and make up a large share of the final income of poor households (see Chart 6). Thus, when facing the economic recession and budget cuts, the risk that these reforms might hit the poor the hardest, and render even more difficult a sustainable and inclusive recovery, needs to be recognised.

### 3.3. Possible improvements in measurement of material deprivation

The development of the EU indicator of material deprivation is quite recent, and represents an important step forward in measuring poverty

and social exclusion at the EU level. However, it still needs to be improved, as requested by the European Council. The forthcoming revision of EU SILC, and the foreseen revision of the poverty target in 2015, makes it necessary to urgently reflect on how to improve on previous achievements. The following points need to be addressed in that context.

Table 2: Discriminatory power of potential deprivation items, 2009  
(in % of the population)

	Enforced lack of a colour TV			Enforced lack of a computer		
	At risk of poverty	Not at risk of poverty	Total	At risk of poverty	Not at risk of poverty	Total
EU-27	1.6	0.2	0.4	16.4	5	6.9
BE	2.2	0.3	0.6	16	2.8	4.7
BG	9	0.3	2.2	47.1	20.8	26.5
CZ	1.1	0.1	0.2	26.5	5.2	7
DK	3.2	0.2	0.6	3.7	1.4	1.7
DE	1.9	0.3	0.5	9.3	2	3.1
EE	1.2	0.1	0.3	16.8	4.7	7.1
IE	1.8	0.1	0.4	13.7	4.3	5.7
EL	0.1	0	0.1	20.5	9.2	11.4
ES	0.2	0	0.1	12.8	5.2	6.6
FR	0.6	0.1	0.2	14.8	3.5	4.9
IT	0.8	0.1	0.3	12.6	3.1	4.9
CY	0.3	0	0.1	9.6	4.2	5.1
LV	1.9	0.3	0.7	31.6	10.2	15.7
LT	1.4	0.4	0.6	25	8	11.5
LU	0.1	0.1	0.1	6.6	0.6	1.5
HU	3.1	0.7	1	29.5	10.9	13.2
MT	0.6	0.3	0.3	6.9	1.4	2.3
NL	0.4	0	0.1	2.8	1	1.2
AT	2	0.2	0.4	13.5	3	4.2
PL	1.6	0.3	0.5	23.8	8.8	11.4
PT	1.8	0.2	0.5	19.2	8.1	10.1
RO	6.8	0.7	2.1	51.7	24.8	30.8
SI	2.6	0.3	0.5	12.5	3.9	4.8
SK	1.2	0.2	0.3	27	7.8	9.9
FI	4.4	0.6	1.1	12.5	2.1	3.5
SE	1.9	0.4	0.6	3.4	1	1.3
UK	0.8	0.1	0.2	7.9	2.3	3.3

Source: Eurostat, EU SILC (ilc\_mddu)

First, the list of items could be expanded in order to cover the situation of material deprivation in a more robust way. A list of nine items is very concise and may not always fully capture material deprivation in each country. For example, the enforced lack of a colour-TV seems quite appropriate to isolate the poorest in most countries (see Table 2), but it actually affects less than 1% of the population at risk of poverty in 9-12 countries.

Several similar indicators are usually based on larger lists of items. For example, Abe (2011) uses a list of nine items to describe material deprivation in Japan corresponding to the 'durable goods' part of the EU-material deprivation; a five item list to measure economic and financial stress; with an additional three item list to cover housing deprivation. In France, the national statistical institute Insee uses a list of 28 items to measure material deprivation; in Ireland, the list developed by Economic and Social Research Institute (ESRI) contains 11 items, including social inclusion and housing items; while deprivation is measured in the UK through a list of 21 items weighted by the prevalence of each item within the population.

Another way to address the issue of variability within Europe could be to consider options including thresholds based on varying lists of items for country groups. The possibility could also be explored of building deprivation indicators on the basis of a common list of items applying to all countries, together with supplementary country specific items to capture more accurately deprivation in all countries (for example, owning a pair of warm boots is more relevant in Finland than it is in Portugal).

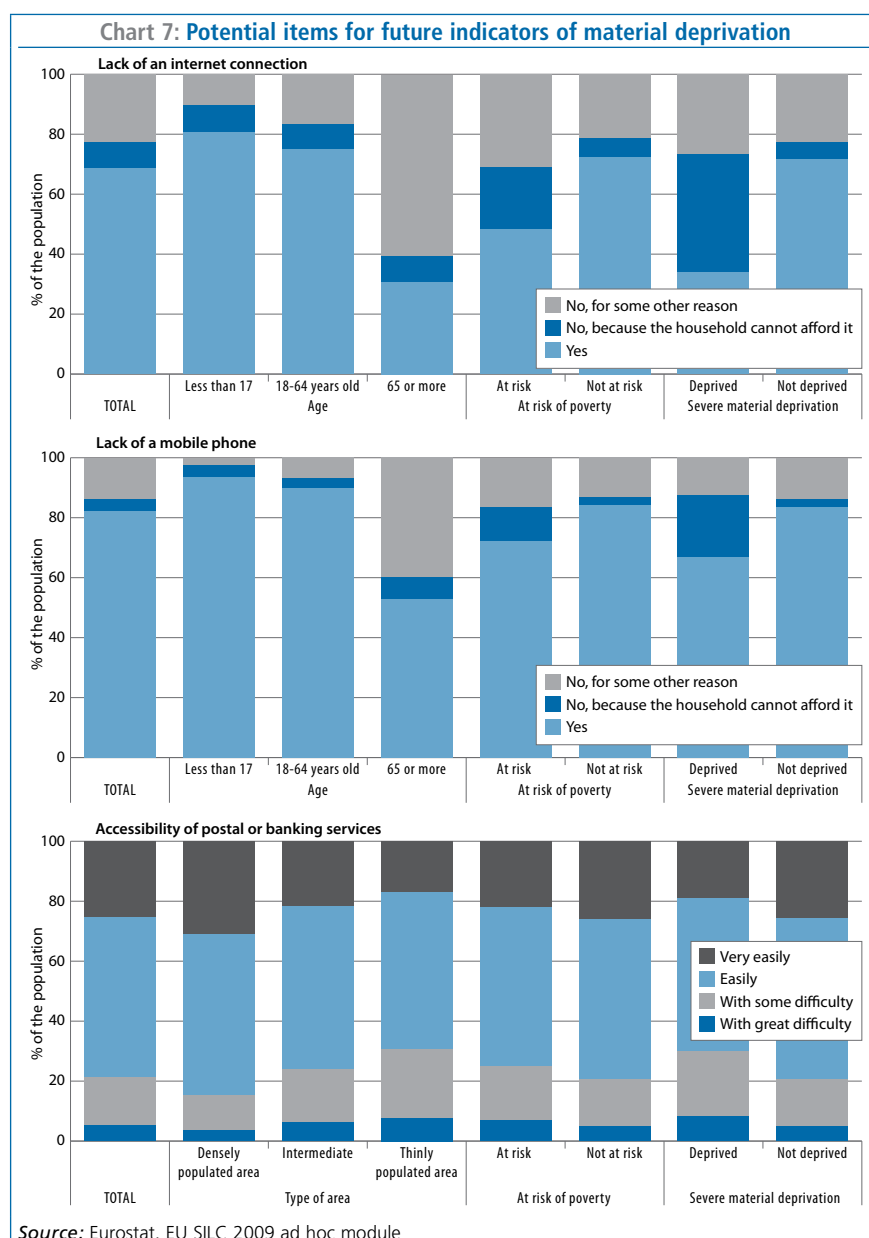
Different thresholds could also be envisaged, with different weights given to the EU core components (e.g. 'deprived' if affected by 4 out of 9 EU items and 1 out of 3 national items or by 5 out of 12 items). Of course, such options deserve detailed exami-

nation and are difficult to implement, and choosing items with comparable importance within country groups, making international comparisons possible, and setting appropriate thresholds, is challenging.

It would also be relevant to try to integrate new items within the list. For example, the enforced lack of a computer, or a cellular phone could be considered (see Table 2). Previous researches (Guio et al. 2009), based on the 2007 Eurobarometer survey, have concluded that both items presented the drawbacks of not being considered as necessary by a significant share of the population (especially

the computer). However these criteria, which are already several years old, deserve to be re-assessed as they are likely to have evolved significantly since the measures were chosen.

Finally, access to services such as internet access, or bank access, are necessary steps for improvements in the deprivation measure. Once again, there are a number of obstacles. For example, it is necessary to take into account the density of the area, as the lack of a given item (for example easy access to food shops or public transport) cannot be assessed in the same way for inhabitants of rural areas as against urban areas. Moreover,



the importance of specific items (for example internet connection, mobile phone, or access to banking services) will vary greatly between different population subgroups (age groups for internet and mobile phone, rural or urban areas for access to banking services, see Chart 7). Such items do not meet the usual criterion of being uniformly spread among the population and this could result in an artificial selection of the subgroups (for example, inhabitants of rural areas would be considered as more deprived than inhabitants of urban areas because of miscellaneous criteria). Addressing these obstacles is challenging but necessary to improve the indicators.

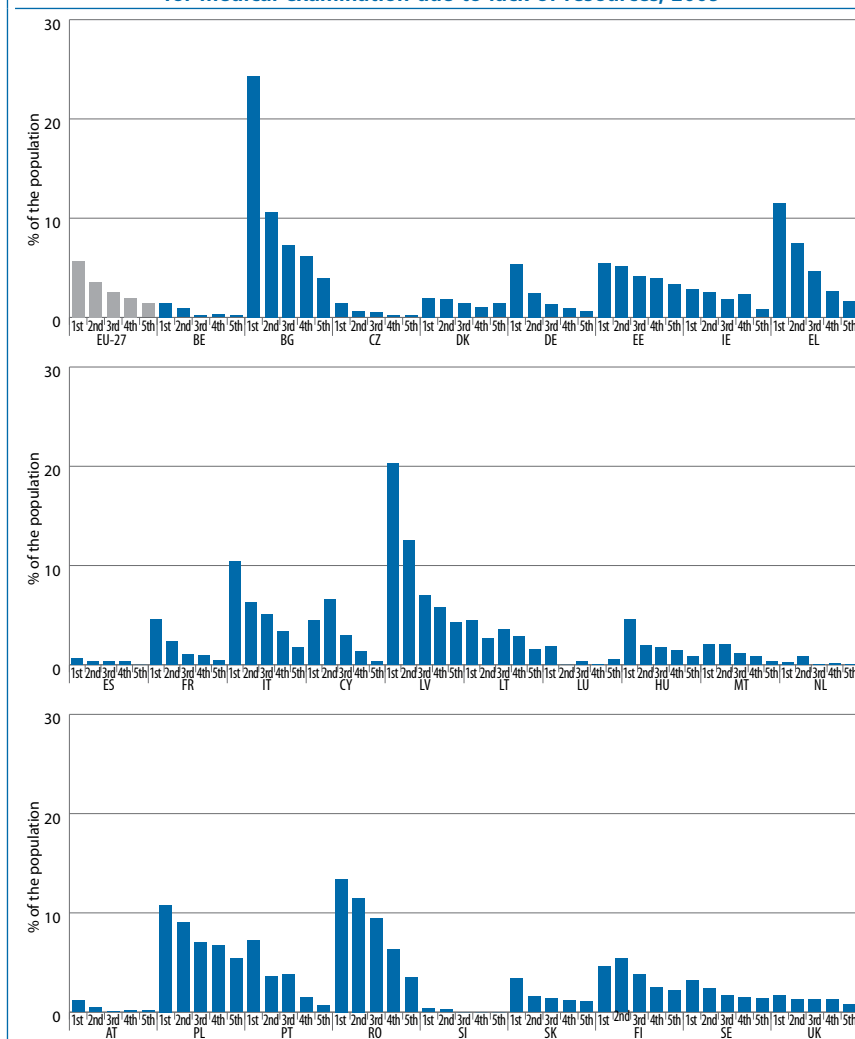
### 3.4. Enlarging deprivation to non-monetary goods and their redistributive capacities

In 1985, the European Council's definition of poverty took on board 'material, cultural and social' concerns. However, while the material deprivation items capture the material side, the social and cultural dimensions are not yet fully reflected in relation to the risk of poverty or social exclusion.

The added value of moving from income-based to non-monetary measures was that it made it possible to capture access to non-monetary goods for which there is no real open market (e.g. health, education, social relationships), or for areas of the economy where the market is less than perfect (like real estate) (Bourguignon et al., 2003). In respect of this, Ravallion (1996) proposed a four dimensional approach of poverty, which specifically including access to non-market goods.

Being able to include such aspects within the risk of poverty or social exclusion is crucial since these factors have an important redi-

Chart 8: Income quintile gradient of the share of persons declaring an unmet need for medical examination due to lack of resources, 2009



Source: Eurostat, EU SILC

Note: Persons facing an unmet need for care due to lack of resources corresponds to those who declared an unmet need for care for one of the following reasons: 'too expensive', 'too far to travel' or 'too long waiting time'.

tributive impact, and can help to distinguish between those groups who largely benefit from them and those who are excluded. For example, in some countries, students live on low income, but they have access to a range of services (such as subsidised healthcare, housing and transport, public internet access, and other facilities) that allow them to enjoy a certain degree of autonomy and to participate in society. It is therefore worth addressing the question of whether they need further support. In other countries, students cannot afford to leave the parental home and fully depend on family resources. The lack of access to resources and to support ser-

vices might hamper their mobility and capacity to find a job, training opportunities, or to form a family.

The introduction of measurements of access to education, healthcare, banking services, or transport could be promising ways of developing material deprivation indicators. However, enlarging the current indicators gathered by EU SILC is challenging and far from easy. A 2007 EU SILC module on housing explored how to integrate some aspects of accessibility (to grocery services, banking, public transport, healthcare services, and school) but showed that it was not generally possible to do this through a single question, and that

it was necessary to ask a number of questions in order to satisfyingly describe deprivation, and to avoid the artificial selection of population subgroups<sup>(15)</sup>.

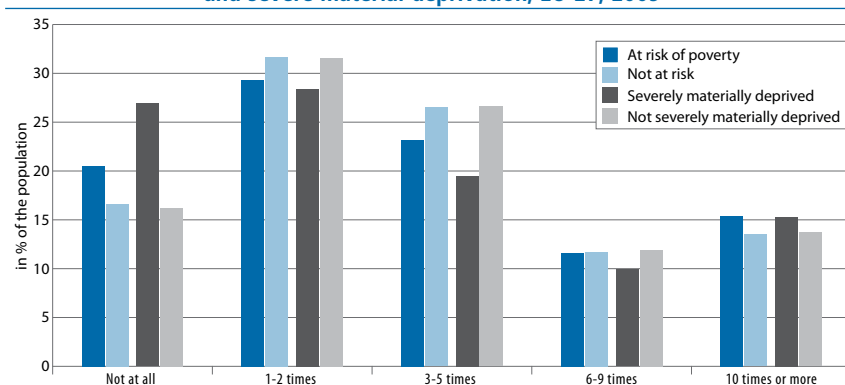
Enlarging the list of items to other dimensions, such as social participation (relations, friends) is also a promising perspective. Estimating the scope of a social network could indeed be an important step forward in seeking to capture social inclusion/exclusion. A previous 2006 ad hoc module of the SILC-survey explored such aspects as 'getting together with relatives or friends at least once a month'. It appeared that this item showed large differences between the experiences of people at risk of poverty or those that were not, and between severely materially deprived people and those that were not. However, those dimensions are quite difficult to integrate into statistical questionnaires, and they might be weakened by issues of memory, time-reference, or definition<sup>(16)</sup>.

Lastly, monitoring access to health-care is clearly an important aspect of the assessment of Member States' efforts to prevent and tackle social exclusion. Unmet need for care, for example, shows an important gradient between people at risk of poverty and those who are not and, to an even greater extent, between those who are severely materially deprived people and those who are not (see Chart 8). The EU SILC 2009 ad hoc module has sought to respond by counting the number of visits to general practitioners and specialists, and demonstrating that the most deprived are generally less likely to visit the doctor, except for those with major health problems that require 10 or more visits a year to the doctor (see Chart 9 and Chapter 2).

(15) For example, as it has already been discussed, access to public transportation is quite difficult to address and requires fine-tuning questions to avoid an artificial selection of rural inhabitants.

(16) For example, it might be quite challenging, especially in an international comparison perspective, to establish the distinction between a friend and a relative.

**Chart 9: Number of visits to general practitioners and specialists, by risk of poverty and severe material deprivation, EU-27, 2009**



Source: Eurostat, EU SILC 2009 ad hoc module.

### 3.5. Opening the black-box of the household level

The current material deprivation indicator is produced at the household level. It assumes that all members of the household suffer from the same deprivation. If one member of the household feels they have 'an enforced lack' the whole household is considered as deprived in this respect since resources are seen as being equally shared within the household. However, some research work questions whether that assumption is reasonable (Jenkins, 1991).

The 2009 EU SILC module explored that question, by addressing some items at an individual level (e.g. mobile phone, spend a small amount of money on oneself, visits to the general practitioner...). Micro-level analyses of possible intra-household inequalities will help to test whether deprivation could vary between household members, for example between men and women, or between adults and children.

Opening the Pandora box of intra-household resource distribution obviously raises the question of the measurement of child deprivation. 'In families with a tight budget, the redistribution of resources could be in favour of the child, since the parents are trying to alleviate the impact of economic strain on the living standard of the child' (Engsted-Maquet and

Guio, 2006) although there can also be cases where children are relatively deprived (notably in cases of alcoholic or drug-dependent adults).

The 2009 EU SILC module on deprivation has sought to capture a number of child-specific deprivations which could make it possible to build child specific deprivation indicators. However, one basic obstacle is that children under 15 are not interviewed. Moreover, families with more than one child when interviewed are asked to respond in relation to all their children, not for each child, which may make it difficult to interpret the results.

### 3.6. A better understanding of the population excluded from the labour market

The dimension of labour market exclusion also deserves fuller consideration. As the following analyses shows, the jobless population is quite heterogeneous and needs to be examined in more detail. For example, just as it might be questionable to include students in the poverty target if they benefit from non-market services, it might also be questionable to include in the poverty target a disabled person not at risk of poverty, but outside the labour market for disability reasons<sup>(17)</sup>.

(17) We do not address here the discussion of the suitability of inclusion of disabled persons into the labour market, which is out of the scope of that report.

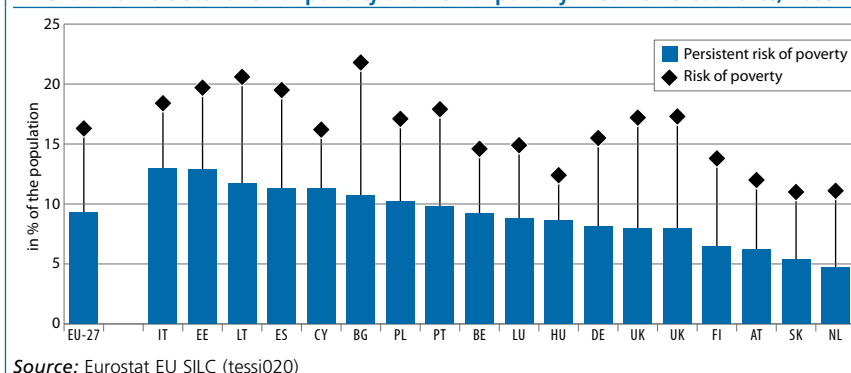


Further work would also be required in order to detail the links between the risk of poverty and labour market exclusion. A deeper knowledge of the situations of the people living in low work intensity households, but not at risk of poverty would help, especially by investigating how far above the poverty line these people are, and what their main sources of income are. Are these people living on adequate disability benefits? In such cases, do they belong to the target? The answer will depend on sensitive political choices regarding the re-activation of people on disability benefits. Are these people living on capital income? Can they be considered socially excluded? A better characterisation of these populations would certainly help the debate. For instance, it would be helpful to analyse the policies or other reasons for differences between Member States.

### 3.7. Towards a dynamic and graded target?

The dynamics of poverty are also an important aspect to investigate. Poverty is not a permanent state and individuals might stay/exit/enter or even re-enter into it again. From a political point of view, it is crucial to address those in persistent poverty, to prevent those who might enter (or re-enter) poverty from doing so, and to help others to escape from it. Evidence shows that poverty persistence is higher in North America than it is in Europe and that, within Europe, poverty episodes are longer in Britain and Ireland (Valetta, 2004; Damioli, 2009) than elsewhere. It also shows that those who stay in poverty for extended periods of time are mainly old people in Belgium, Denmark, Germany, Greece, and Ireland, while it is mainly households with children, low labour attainment, and low educational attainment in France, Italy, Portugal, and Spain (Damioli 2009).

Chart 10: Persistent risk of poverty and risk of poverty in some EU countries, 2009



Source: Eurostat EU SILC (tessi020)

A better understanding of poverty dynamics would help to target those most at need and better prevent the others from entering into persistent poverty. The longitudinal dimension of EU SILC, which is still under-exploited, is a significant potential source of greater understanding even if some technical issues have until now inhibited its full use. For example, the use of longitudinal data is the only way to test whether those currently at-risk-of-poverty remain the same from one year to another or completely turn-over (see Chart 10). Thill and Eiffe (2010) demonstrate that longitudinal data adds value to much social political analysis and show that there are, in reality, some changes in material deprivation (especially those related to non-durable items) from one year to another for individuals.

The depth, or intensity, of poverty is another dimension which would be relevant to include in the poverty measurement. Being considered at risk of poverty because of being labelled by one indicator does not have the same meaning as being there as a result of accumulating the three characteristics. The next section provides some evidence on that point by discussing the ways the dimensions overlap at the country level.

### 3.8. Short term social diagnosis

The recent economic crisis has highlighted the need for short term monitoring of poverty. The detailed nature of the EU SILC survey, as well as its developed treatments, inevitably

means some delays in data availability. This is reinforced by the fact that some crucial data, such as income or the activity status during each month or during month-to-month refers to the previous year. This means that there is often a two-year delay in the information becoming available. In line with the Council conclusions (2010) asking for an enhancement in timeliness, efforts are being made by the European Statistical System to shorten these delays while maintaining good data quality, and best practices of some Members States<sup>(18)</sup> could be shared in order to try to gain time.

Other ways to be able to get fresher information would include investigating which of the existing pieces of information of EU SILC might serve, in effect, as an 'advanced indicator'. The severe material deprivation indicator can illustrate that point. Indeed, while its 'durable goods' component may not be very responsive to economic shocks, the 'economic strain' dimension may well be more responsive. Examination of the recent evolution of these items just after the crisis shows that items such as 'ability to face unexpected expenses' or 'ability to afford a week of holidays away from home' have been responsive to the crisis while the global indicator was still stable. This could be reinforced by developing questions relative to the current situation of the household or immediate future<sup>(19)</sup>.

(18) For example, Spain and Latvia are able to disseminate early estimates of main indicators.

(19) For example 'Do you expect to face unemployment/significant loss of revenues/financial difficulties within the next 6 months?'



### 3.9. Covering extreme poverty: a necessary improvement of existing tools

There is now large evidence of the income distribution of the overall population thanks to the efforts dedicated to produce the EU SILC survey. However, if this tool is well-adapted to cover the whole population, it encounters also some limitations to capture extreme situations, namely most extreme poverty. Homeless people are not captured by classic statistical surveys<sup>(20)</sup>. Persons currently not residing in households, as persons temporarily

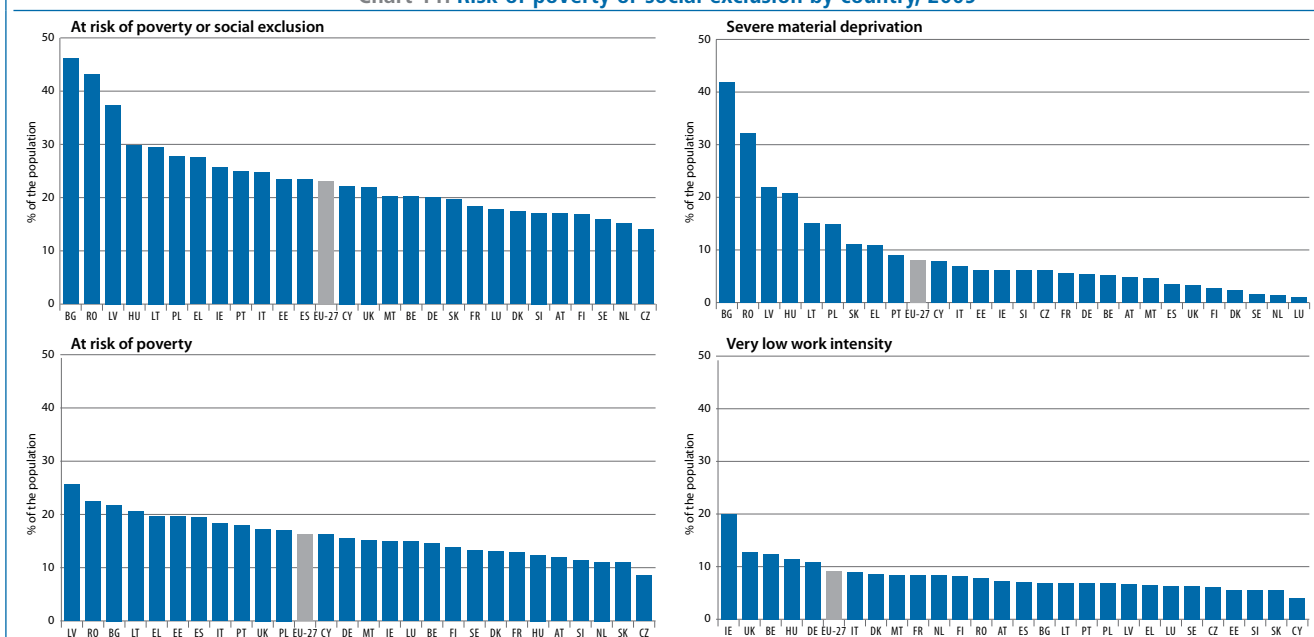
institutionalised (health home), or people living in institutions, prisons, hospitals, hostels, or even camps are also not captured (European Commission, 2011). Such subgroups might, however, be concerned.

Building a sample of homeless requires more sophisticated methods, for example a joint initiative of statistical institutes and institutions hosting homeless people. Advanced statistical methods make it then possible to establish random samples of people visiting institutions by selecting subsamples within visitors of institutions (see European Commission, 2004, 2009). Eurostat, the statistical

office of the European Commission, is also conducting a new initiative to collect national estimations on homeless people across the EU-27 through census data communication.

Some population subgroups are also more difficult to capture, even if their members are covered by classical surveys as they are impossible to be distinguished afterwards. For example, the Roma might be covered by the EU SILC if they live in regular residences, but there is technically no means to identify them in the data. Current work on poverty mappings at regional levels could, however, provide information in that direction.

Chart 11: Risk of poverty or social exclusion by country, 2009



Source: Eurostat, EU SILC (ilc\_peps01, ilc\_li02, ilc\_lvh11 and ilc\_mddd11)

(20) In non register-countries, samples are selected among lists of residences and not lists of persons. For that reason, it is by definition impossible to select homeless people in a sample.

## 4. POVERTY AND SOCIAL EXCLUSION FORMS ACROSS EUROPE

On the basis of the EU definition, in 2009, some 23% of the total population of the European Union are at risk of poverty or social exclusion, amounting to 114 million people. The risk varies widely between countries, however, ranging from over 40% in Bulgaria or Romania to 14-17% in the Czech Republic, the Netherlands, Sweden, Finland, and Slovenia (see Chart 11).

The risk of poverty or social exclusion fell slightly between 2005 and 2009 (see Chart 12), mainly due to the reduction in the number of people considered to be severely materially

deprived in the new Member States, where living standards had improved considerably during this period. However, this apparent stability masks diverging situations between Member States following the 2008 crisis, with poverty or risk of exclusion having increased in several countries – Latvia, Hungary, Lithuania, Ireland, and Estonia – in 2009.

The relative importance of the three dimensions that make up the combined EU indicator of being at risk of poverty or social exclusion is not the same in all countries.

The *risk of poverty* (16% in 2009 for the EU-27 as a whole) ranges from 26% in Latvia, 22% in Romania and Bulgaria, to 9% in the Czech Repub-

lic and 11% in Slovakia, the Netherlands, and Slovenia.

While 8% of the EU-27 population faces *severe material deprivation*, this is mainly concentrated in the new Member States with more than 40% of the total population suffering from material deprivation in Bulgaria, 32% or Romania, and 22% in Latvia and 20% in Hungary. On the other hand, less than 2% of the population is affected in Luxembourg, the Netherlands, and Sweden.

9% of the EU-27 population live in a *jobless household*, with Ireland, the United Kingdom, Belgium, Hungary, and Germany being the most concerned by exclusion from the labour market.

Chart 12: Dynamics of the risk of poverty or social exclusion by country

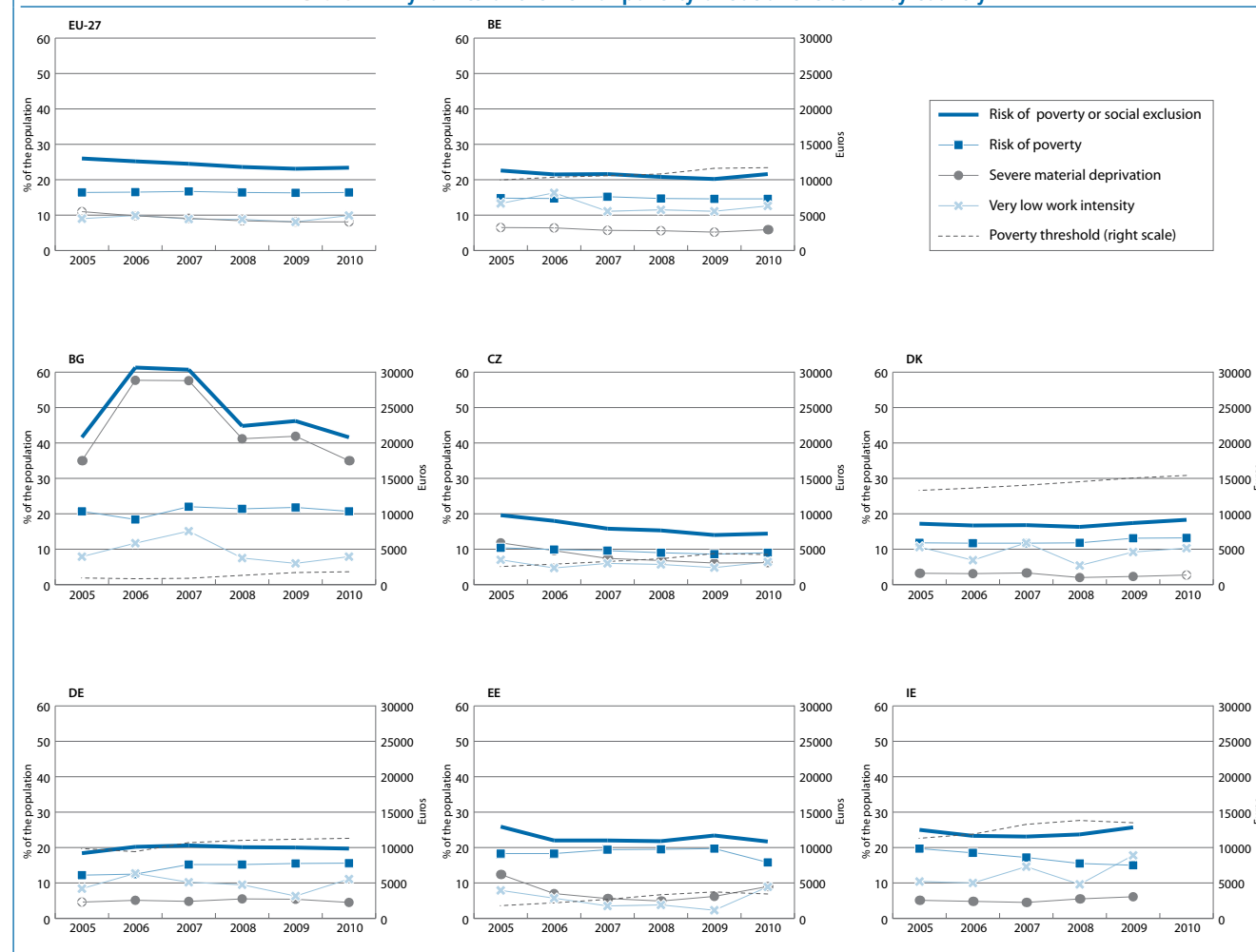


Chart 12: Dynamics of the risk of poverty or social exclusion by country

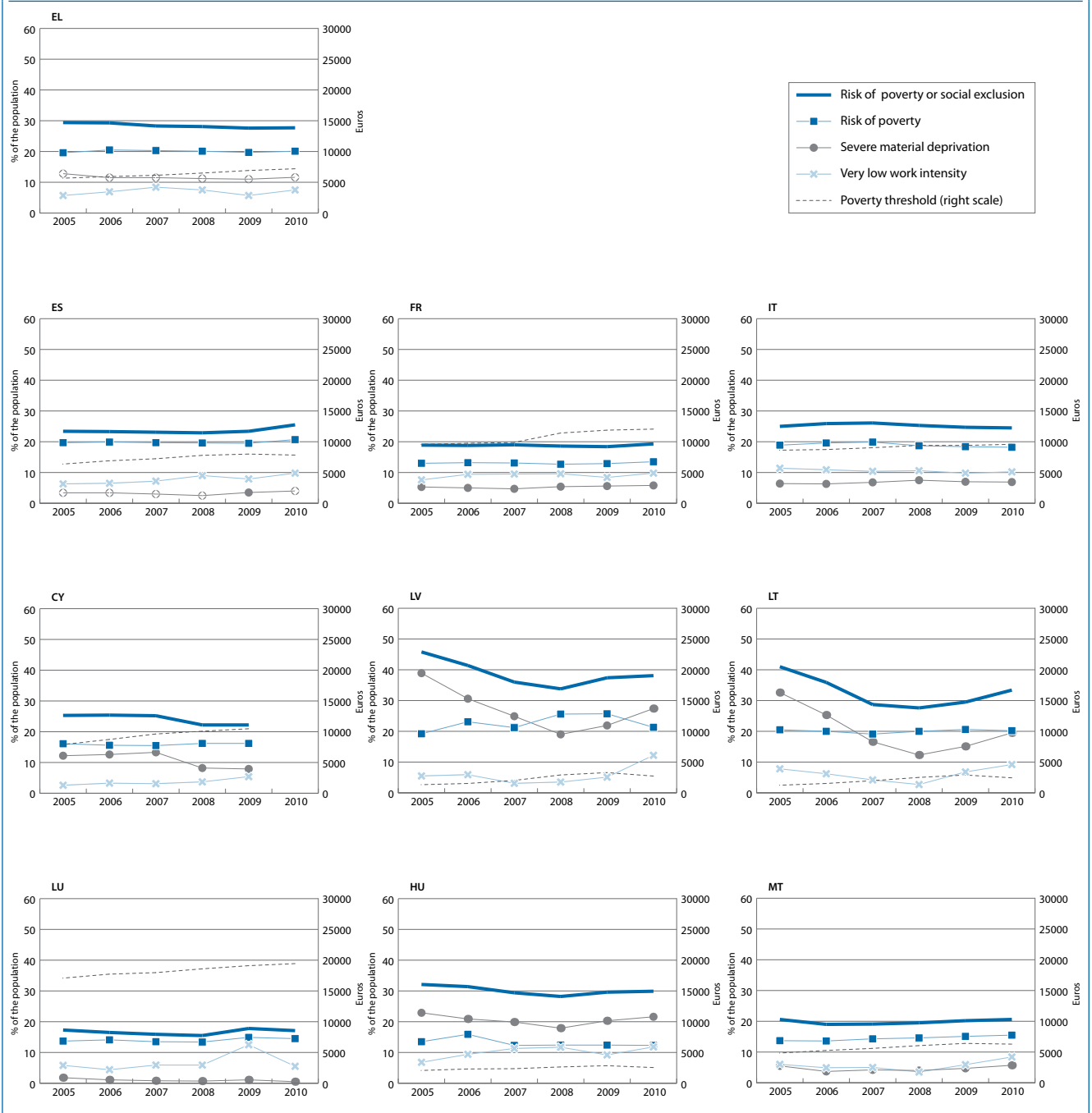
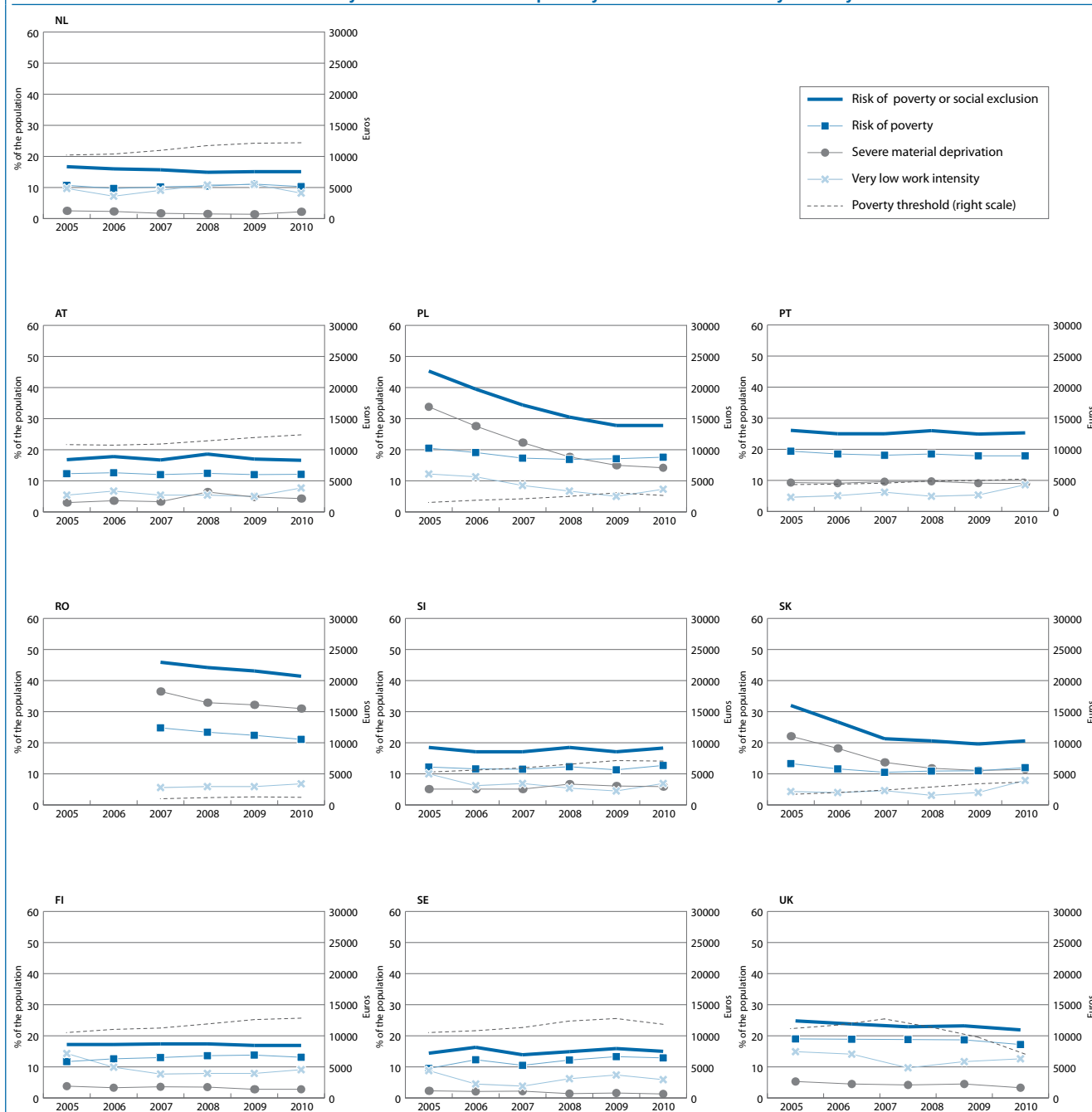


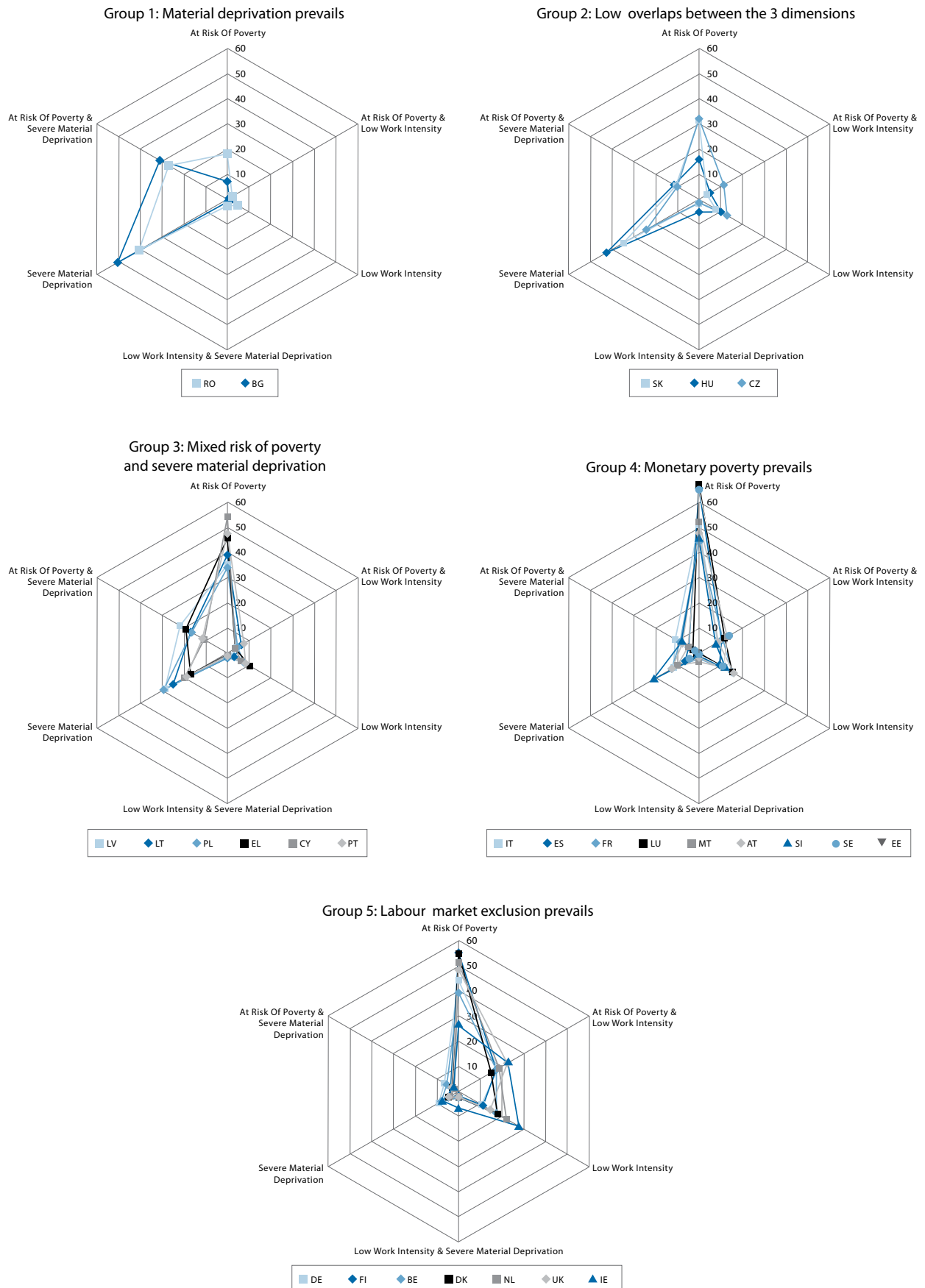
Chart 12: Dynamics of the risk of poverty or social exclusion by country



Source: Eurostat, EU SILC

Data for BG, FR, CY, LV, PL 2008 break in series

**Chart 13: Patterns of overlaps of the dimensions of poverty or social exclusion among countries, 2009**  
 (% of the national population at risk of poverty or social exclusion)



Sources: Eurostat, EU SILC

Share of each dimension within the population at risk of poverty or social exclusion

## 4.1. Member States are facing various forms of poverty

Taken together, the various dimensions of the risk of poverty or social exclusion combine to suggest patterns across Member States, confirming the view that poverty is a multidimensional challenge and that several indicators are needed in order to capture it<sup>(21)</sup>. Across the European countries, various forms of poverty and social exclusion are distinguishable implying the need for appropriately adapted policy responses. Four major groups can be identified by clustering the countries with similar profiles<sup>(22)</sup> (see Chart 13), although they differ in the way the dimensions occur and overlap.

### 4.1.1. Severe material deprivation prevails in Bulgaria and Romania

Severe material deprivation remains the most challenging form of poverty and social exclusion in Bulgaria and Romania, where 75 % and 90 % respectively of the people at risk of poverty or social exclusion are severely materially deprived. Chart 13 shows, however, that a proportion of those at risk of poverty or social exclusion, while being severely materially deprived, are not necessarily poor in monetary terms.

In both countries, GDP per capita remains low despite high growth rates during the past years (see Table 3).

(21) See Ravallion 2011, On multidimensional indices of poverty, Policy research working paper n°5580, World Bank

(22) A cluster analysis at the country level was run on the following variables: the risk of poverty or social exclusion, the share within the people at risk of poverty and social exclusion of people at risk of poverty, severely materially deprived (SMD) and living in households with very low work intensity (LWI). The following variables have also been introduced: the share of people monetarily poor but not SMD nor in LWI, the share of people in LWI but not SMD nor at risk of poverty, and the share of people in LWI and at risk of poverty. Euclidean distance between countries according to those dimensions was calculated and clusters have been built on this basis.

Moreover, social protection benefits, especially for those people who are eligible for means-tested benefits, represent a lower share of GDP than in other countries, and the impact of redistribution is lower than it is in the rest of Europe (see Chapter 2).

The positive aspect is that, over the past five years, poverty and especially severe material deprivation has declined strongly in both countries as a result of economic growth and an increase in resources devoted to social policy intervention<sup>(23)</sup>. However, recent data suggests that the economic crisis has halted this progress. Some of the economic strains in the list of deprivations captured by the EU SILC survey clearly illustrate this, with the share of people unable to pay utility bills rising dramatically in 2008 and 2009 in Bulgaria and Romania, in part due to the rise in energy prices in 2009. The share of people unable to afford a meal with meat or protein every second day increased by 7 percentage points in Bulgaria and 4 percentage points in Romania between 2008 and 2009. This could be partly explained by an increase in meat prices during that period, especially in Bulgaria, but also by 'coping' strategies – a World Bank survey on household coping strategies during the crisis highlighting the fact that 35 % of households faced income losses in Bulgaria after the crisis, and 60 % in Romania reduced their food consumption to cope with the crisis<sup>(24)</sup>.

### 4.1.2. Forms of poverty in Slovakia, the Czech Republic, and Hungary

While material deprivation remains relatively important in Slovakia, the Czech Republic, and Hungary, the pattern of poverty or social exclusion is more even, with only a limited proportion of the population accumulating more than one type of poverty and social exclu-

(23) See Social protection committee report 2011, European Commission.

(24) See: World Bank, The Jobs Crisis: Household and Government Responses to the Great Recession in Eastern Europe and Central Asia, 2011.

sion and, despite relatively low GDP per capita, their policy structures appear to have ensured a sufficient redistribution to contain inequalities and limit the risk of poverty (Chapter 2).

### 4.1.3. A shared form of poverty and exclusion in some eastern and southern Member States characterised by monetary poverty and deprivation

In some South European Member States (Greece, Portugal, and Cyprus) as well as some Central and Eastern Europe Member States (Latvia, Lithuania, and Poland), the population at risk of poverty or social exclusion is mainly 'monetary poor' but also tend to some extent to be 'materially deprived' as a result of redistribution policies being insufficient to offset the effects of high levels of income inequality (see Table 3).

Five years ago, Lithuania, Latvia, and Poland presented quite different profiles of poverty and social exclusion, with severe material deprivation posing much greater concern. Economic growth, together with increased resources devoted to social policy interventions, has contributed to a significant improvement in overall living standards, including among the lowest income groups.

However the proportion of people who were severely materially deprived increased in Lithuania and Latvia between 2008 and 2009, after several years of decline. Income levels have also dramatically decreased since 2008, with the median equivalised income dropping by 17 % in Latvia and 16 % in Lithuania between 2009 and 2010 (reference years 2008 and 2009). Statistically, this fall in median income has resulted in a reduction in the poverty thresholds, which has led to misleading indications from the at-risk-of-poverty data (-4 percentage points in Latvia, and stagnation in Lithuania<sup>(25)</sup>).

(25) 2010 EU SILC data up to now available for only a few countries.

Table 3: GDP per capita, social expenditure and possible determinants of poverty or social exclusion by country

		GDP PER CAPITA (euros)	Inequalities (Gini coefficient)	Impact of redistribution(*)	Social protection benefits excl. old age			Employment rates				Part-time workers (% of total employment)	Percentage of employees with temporary contracts
					Total	Non means- tested benefits	Means- tested benefits	20 to 64 years	Females 15 to 64 years	Youth 15 to 24 years	Seniors 55 to 64 years		
EU-27		23 500	30.4		15.4	13.1	2.3	69.1	62.5	35.1	46.0	18.8	13.6
Group 1	BG	4 600	33.4	17.4	8.2	7.5	0.7	68.8	64.0	24.8	46.1	2.3	4.7
	RO	5 500	34.9	23.0	7.6	6.9	0.7	63.5	56.3	24.5	42.6	9.8	1.0
Group 2	CZ	13 100	25.1	52.0	10.6	10.2	0.4	70.9	61.4	26.5	46.8	5.5	8.5
	SK	11 600	24.8	35.7	9.7	9.2	0.5	66.4	58.2	22.8	39.5	3.6	4.4
	HU	9 300	24.7	57.1	13.5	12.3	1.2	60.5	54.4	18.1	32.8	5.6	8.5
Group 3	LV	8 200	37.4	15.2	7.0	6.7	0.2	67.1	66.8	27.7	53.2	8.9	4.3
	CY	21 200	28.4	28.6	11.0	9.4	1.6	75.7	68.1	35.5	56.0	8.4	13.4
	EL	22 900	32.3	20.1	15.4	13.4	2.0	63.7	56.3	28.0	44.1	12.8	25.4
	LT	7 900	35.5	29.9	9.3	9.0	0.2	67.2	67.5	21.5	51.6	8.3	2.2
	PL	8 100	31.4	27.5	9.3	8.6	0.8	64.9	57.6	26.8	32.3	8.4	26.5
	PT	15 900	35.4	26.3	12.9	11.2	1.7	71.2	66.1	31.3	49.7	11.6	22.0
Group 4	EE	10 300	31.4	23.9	8.6	8.5	0.1	69.9	68.8	28.9	60.4	10.5	2.5
	ES	20 800	33.1	13.2	14.5	12.9	1.6	65.8	52.7	22.9	42.2	6.0	12.1
	IT	25 200	31.5	20.7	12.9	11.6	1.3	61.7	49.7	21.7	35.7	14.3	12.5
	SI	17 300	22.7	48.6	12.9	11.3	1.7	71.9	67.9	35.3	35.6	10.6	16.4
	AT	32 800	25.7	50.2	15.8	14.5	1.3	74.7	69.4	54.5	41.1	24.6	9.1
	FR	29 300	29.8	45.8	17.8	14.3	3.5	69.5	65.0	31.2	38.8	17.3	14.5
	LU	76 600	29.2	44.8	14.5	13.9	0.6	70.4	61.5	26.7	38.2	18.2	7.2
	MT	14 200	27.8	34.6	10.8	8.6	2.2	58.7	39.6	44.0	27.9	11.3	4.9
	SE	31 300	24.8	50.0	17.3	16.5	0.8	78.3	75.7	38.3	70.0	27.0	15.3
Group 5	DK	40 300	27.0	58.0	17.8	16.9	0.9	77.8	74.8	63.6	57.5	26.0	8.9
	FI	32 500	25.9	47.3	16.7	15.6	1.1	73.5	72.4	39.6	55.5	14.0	14.6
	NL	34 600	27.2	45.9	17.3	14.4	2.9	78.8	72.7	68.0	55.1	48.3	18.2
	BE	31 400	26.4	45.3	17.9	16.7	1.2	67.1	61.0	25.3	35.3	23.4	8.2
	DE	29 300	29.1	35.7	17.2	14.1	3.1	74.8	69.8	46.2	56.2	26.1	14.5
	UK	25 300	32.4	43.1	13.9	11.3	2.6	73.9	68.2	48.4	57.5	26.1	5.7
	IE	35 700	28.8	60.0	16.3	11.9	4.5	66.7	61.7	35.4	51.0	21.2	8.5

Sources: Eurostat, National accounts (2009), EU SILC (2009), LFS (2009), and ESSPROSS (2008)

(\*)Note: The impact of redistribution is measured as the reduction in percentage points of the risk of poverty before and after social transfers.

#### 4.1.4. Monetary poverty in a group of EU-15 and EU-10 countries

The group of countries comprising Spain, France, Italy, Sweden, Austria, Estonia, Luxembourg, Malta, and Slovenia includes an important number of people at risk of poverty who are not suffering from labour market exclusion or material deprivation. This is particularly true for Estonia, Spain, Luxembourg, and Sweden.

#### 4.1.5. Labour market exclusion in some EU-15 countries

Tackling labour market exclusion is a priority in the fight against poverty and social exclusion in a number

of Western and Northern Member States (Belgium, Denmark, Germany, the Netherlands, Finland, the UK, and especially Ireland). In households at risk of poverty and social exclusion in these Member States, the proportion of the population above 18 years of age living in a household with very low work intensity reached 48% in the Netherlands, 46% in Belgium, and above 30% in Denmark, Finland, Germany, and the United Kingdom.

Within this group, Ireland stands out as having more than 60% of those at risk of poverty or social exclusion found living in a jobless household. This is a direct consequence of the economic crisis, which hit Ireland particularly severely. Unemployment rose sharply between 2008 and 2009, with the number of people at risk of poverty or social

exclusion increasing by 100 000. During that period, and despite the crisis, the risk of poverty has been stable in Ireland due to a statistical effect of the income distribution. In this respect a recent study<sup>(26)</sup> shows that the total income composition changed after the crisis due to the fall in the share of total income from employment, resulting in a decrease of the poverty threshold. Due to these changes, the population has not been uniformly hit by the crisis. While pensioners aged 60 or over experienced increases in their incomes, and moved above the poverty line, adults of working age and children have seen a decline of their revenue of 3 to 6 percentage points, and moved somewhat below the poverty line.

(26) S. Jenkins et al. ("The Great Recession and the Distribution of Household Income").



All the above countries, as well as most of the rest of the EU-15, have high levels of redistributive social expenditures, but they face rather different patterns of poverty or social exclusion from the previous group. This may suggest weaknesses in the design of social policies such that they fail to cover all groups in the labour market. In particular, monetary poverty among jobless households is relatively high in the United Kingdom, Belgium, Germany, and Ireland. This appears to be related to the use of income-based benefits in all of these countries, in so far as these benefits create disincentives for their beneficiaries to participate in the labour market. In that context, the United Kingdom is a specific case in that jobless households face risk of poverty more often than in the rest of Europe, presumably because unemployment benefits are less generous than elsewhere.

In terms of poverty and social exclusion in Germany, the share of jobless households decreased between 2005 and 2009, with activity rates increasing, especially among older workers (+9 points between 2005 and 2009). This increase in labour market participation did not lead to fewer people at risk of poverty or social exclusion, however, but to an increase of in-work poverty<sup>(27)</sup>.

## 5. WHO ARE THE PEOPLE AT RISK OF POVERTY OR SOCIAL EXCLUSION?

The sections of the population facing poverty or social exclusion, and the type of poverty and exclusion they face, vary greatly across countries. A better understanding of the labour market status, and family and personal characteristics, of those at risk is crucial to the development of effective policies.

(27) It is, however, not possible for the moment to address whether those people are the same or not, but further work could investigate in that sense.

### 5.1. Students, housewives or disabled persons: four in ten Europeans at risk of poverty or social exclusion of working age are inactive

Within the population at risk of poverty or social exclusion, four adults in ten of those aged 18-59 are inactive but not retired, compared to one in five within the whole population, with the share being significantly higher than in the population as a whole in Denmark (61% vs. 18%), Sweden (43% vs. 14%), the United Kingdom, France, and Finland (see Chart 14).

Inactive people of working age is a relatively complex population subgroup, including inactive women of working age along with persons out of the labour market for health reason, as well as students.

Evidence from different Member States shows that people who declare themselves as being permanently disabled<sup>(28)</sup> are over-represented among people at risk of poverty or social exclusion compared to the whole population (see Chart 15). They represent 9% of the people at risk of poverty or social exclusion aged 18-59 in Europe, but only 3% of the whole population of this age group. This raises issues about the adequacy and design of policy tools aimed at addressing disability and sickness across Europe. Policy instruments able to provide access to the labour market also play an important role, as well as measures in favour of education, given that people with disabilities also have, on average, lower levels of educational attainment<sup>(29)</sup>.

(28) EU SILC contains information on disability pensions/benefits received by individuals and self-declared reason for inactivity which constitute several characterisations of disabled persons. When put together, both data show a high correlation at a national level, indicating that the self-declared disability status is valuable.

(29) See OECD (2010), *Sickness, Disability and Work: Breaking the Barriers: A Synthesis of Findings across OECD Countries*, OECD Publishing.

The share of disabled persons within the population at risk of poverty or social exclusion, compared to the population aged 18-59, is particularly significant in Belgium (14% vs. 4%), Czech Republic (15% vs. 4%), Hungary (16% vs. 8%), Estonia (17% vs. 5%), Finland (20% vs. 5%), Sweden (12% vs. 2%), Ireland (15% vs. 5%), the United Kingdom (18% vs. 4%), and Poland (12% vs. 6%)<sup>(30)</sup>.

A number of these countries are also those where self-declared disability among those of working age is highest (Estonia, Hungary, Finland, Sweden, the United Kingdom...). Some of them are also part of countries with the lowest share of disability benefit expenditures dedicated to active measures to integrate disabled people in the labour market, such as investment in employment support or vocational rehabilitation (Czech Republic, Finland, Hungary, and the United Kingdom)<sup>(31)</sup>.

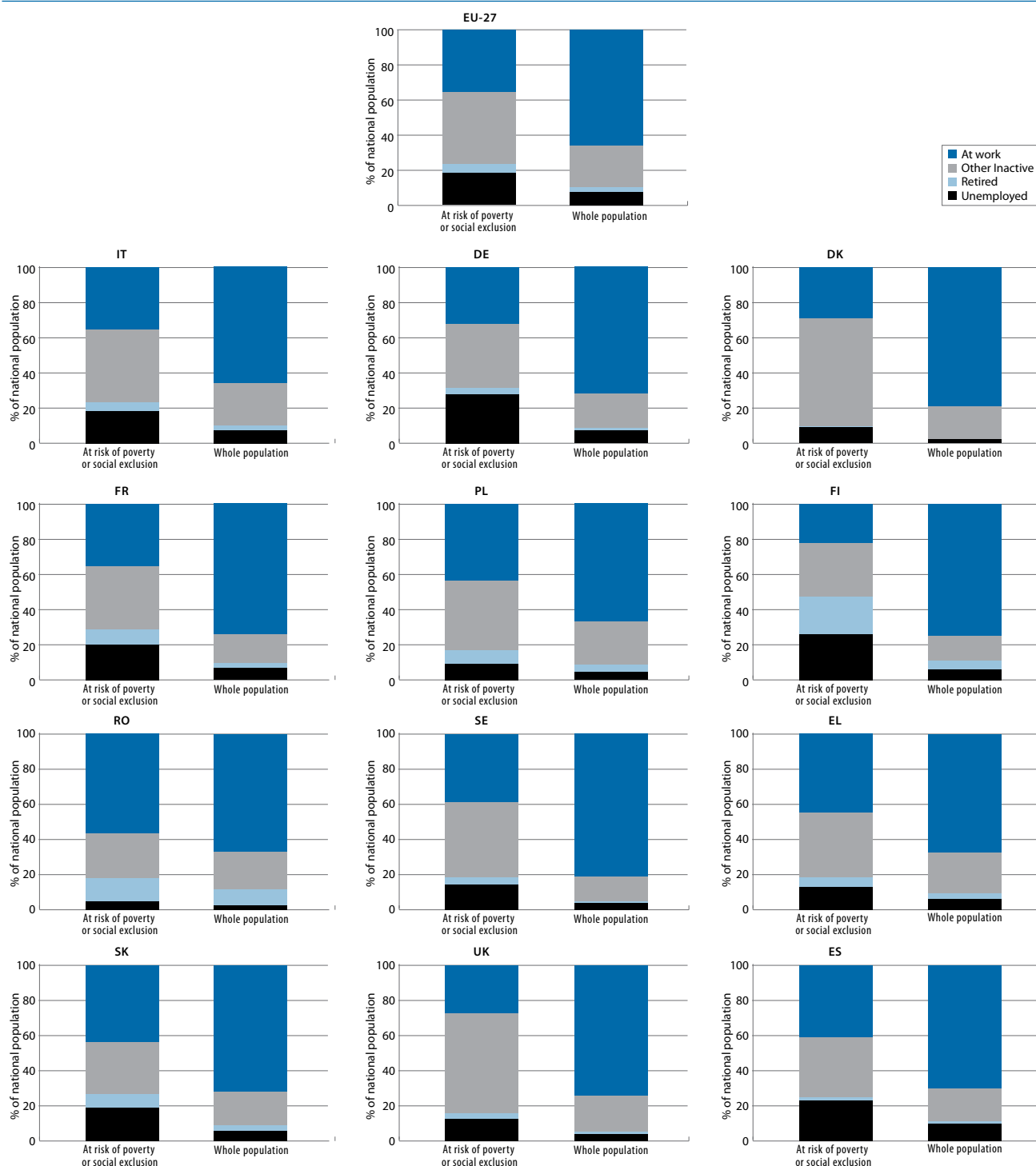
Persons not employed and fulfilling domestic tasks, such as care for children or other dependants, are over-represented in the population at risk of poverty or social exclusion in most Southern countries, with Italy, Spain, Greece, Malta, and Cyprus (and Belgium and Ireland) mainly concerned. These persons remain excluded from the labour market and also face greater difficulty to participate again in the labour market after a period of inactivity. They are also more likely to face lower income in the future, with lower pensions. Increasing divorce rates can also lead to a damageable loss of revenue.

Policy actions aimed at increasing the labour market participation of inactive people of working age include the tackling of disincentives in the tax and benefit system (notably with respect to second income earners) as well as the provision of affordable care services for children and other dependants (see also Chapter 4).

(30) Source: DG EMPL calculations based on EU SILC (2009).

(31) Ibidem.

**Chart 14: Activity status of the population of working age by risk of poverty or social exclusion, 2009.**  
Full coverage of Member States in Annex 2

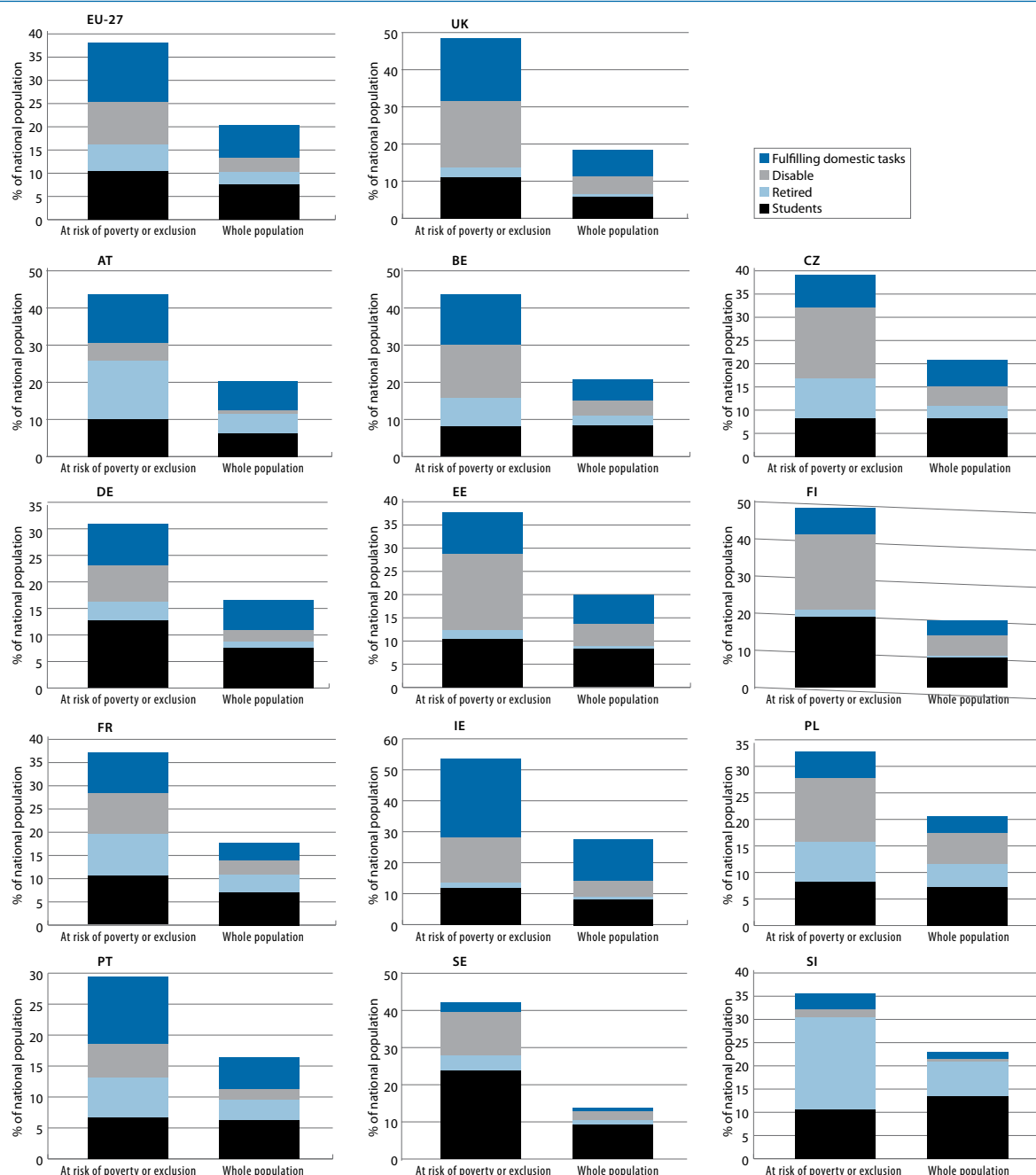


Source: DG EMPL calculations based on EU SILC

Population aged 18-59

**Reading note:** in the EU-27, 38% of the population aged 18-59 at risk of poverty or social exclusion is at work against 71% in the whole population. Activity status is self-declared in EU SILC. Therefore results might differ from LFS figures.

**Chart 15: Composition of inactive population of working age by risk of poverty or social exclusion, 2009**  
Full coverage of the Member States in Annex 2



Source: DG EMPL calculations based on EU SILC.

Note: Population aged 18-59.

Finally, students appear to represent a large part of people at risk of poverty or social exclusion in a number of countries, such as Denmark, Sweden, Germany, Finland, and the Netherlands. They are less present within the population at risk of poverty or social exclusion than in the rest of the population in the new Member States. More generally, those aged 18 to 24 face a higher risk of poverty and severe material deprivation than the

rest of the population, although the situation of students as well as those aged 18-24 has to be put in perspective. Students are more likely than the rest of the population to benefit from access to a number of in-kind benefits, such as subsidised housing and transport, public internet access, and other facilities.

Moreover, the age at which young people leave the parental home and

the age at which they enter active life varies significantly between countries.<sup>(32)</sup>

Opportunities to leave the parental home depend on both the national labour market perspectives for young people and the level of support available, either in cash (specific allowances, social security rights, subsidised study

(32) See Eurostat 2008, "Men and Women in Europe" for average age for leaving parental home and Eurostat 2010, Statistics in focus No 50 for a detailed portrait of young adults living with their parents.

loans, etc.) and in-kind (subsidised housing or transport, etc.).

In countries where young people tend to leave their parental home at a later age, a large proportion of them continue to benefit from their parents' income. They are therefore not considered as poor even if their personal economic situation is inadequate<sup>(33)</sup>. On the other hand, in countries with early departures from parental households (as Sweden or Denmark), the share of young people considered to be the head of their own household is significant, and so is the risk of poverty among young adults<sup>(34)</sup>.

Given the above, it is appropriate for future research to explore to what extent students should be treated separately in the analysis of poverty and social exclusion, with possible indicators relating to their self-reliance, the duration of low income periods, their access to services, and their chances of making an effective transition from education to work, or of avoiding under-employment.

## 5.2. The unemployed face multiple dimensions of poverty

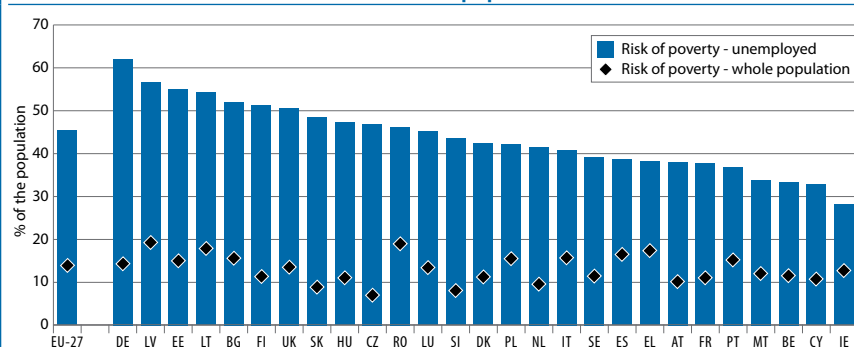
On average, some 10 % of the people at risk of poverty or social exclusion in the EU are unemployed<sup>(35)</sup>, while the unemployed only represent 5 % of the whole population in Europe in 2009. The proportion of those at risk of poverty or social exclusion who are unemployed varies a great deal between countries, however, ranging from 18 % in Germany, 16 % in Belgium, to 5 % or less in the United Kingdom, Denmark, Poland, and Romania.

(33) Eurostat 2010 study mentions that material difficulties are the main obstacle facing young people in gaining their independence and shows that having a job does not always allows a young person to leave the parental home.

(34) Eurostat 2010.

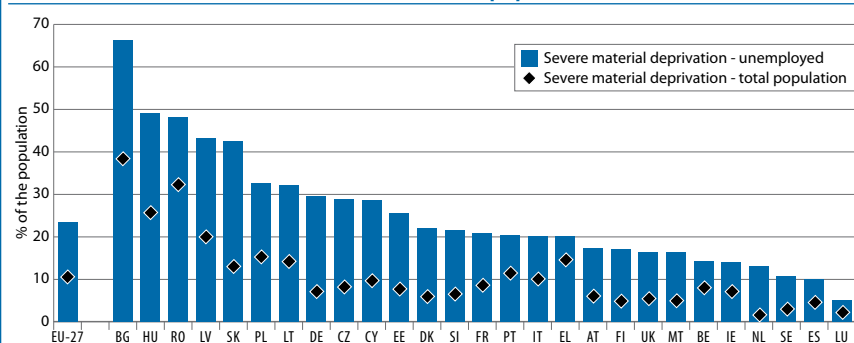
(35) Activity status is self-declared in EU SILC. Results might therefore slightly differ from LFS.

Chart 16: Risk of poverty within unemployed and within the whole population, 2009



Source: Eurostat, EU SILC (ilc\_li04)

Chart 17: Severe material deprivation within unemployed and within the whole population.



Source: Eurostat, EU SILC (2009)

The risk of poverty for unemployed persons is particularly high in Germany (above 60 %), Bulgaria, and Latvia (see Chart 16). At the other end of the scale, however, unemployment is much less linked to poverty in Belgium (33 %) and Ireland (28 %) even though Ireland and Germany dedicate quite similar levels of GDP to addressing unemployment, raising issues concerning the design of unemployment benefits within countries, and their combination with other benefits.

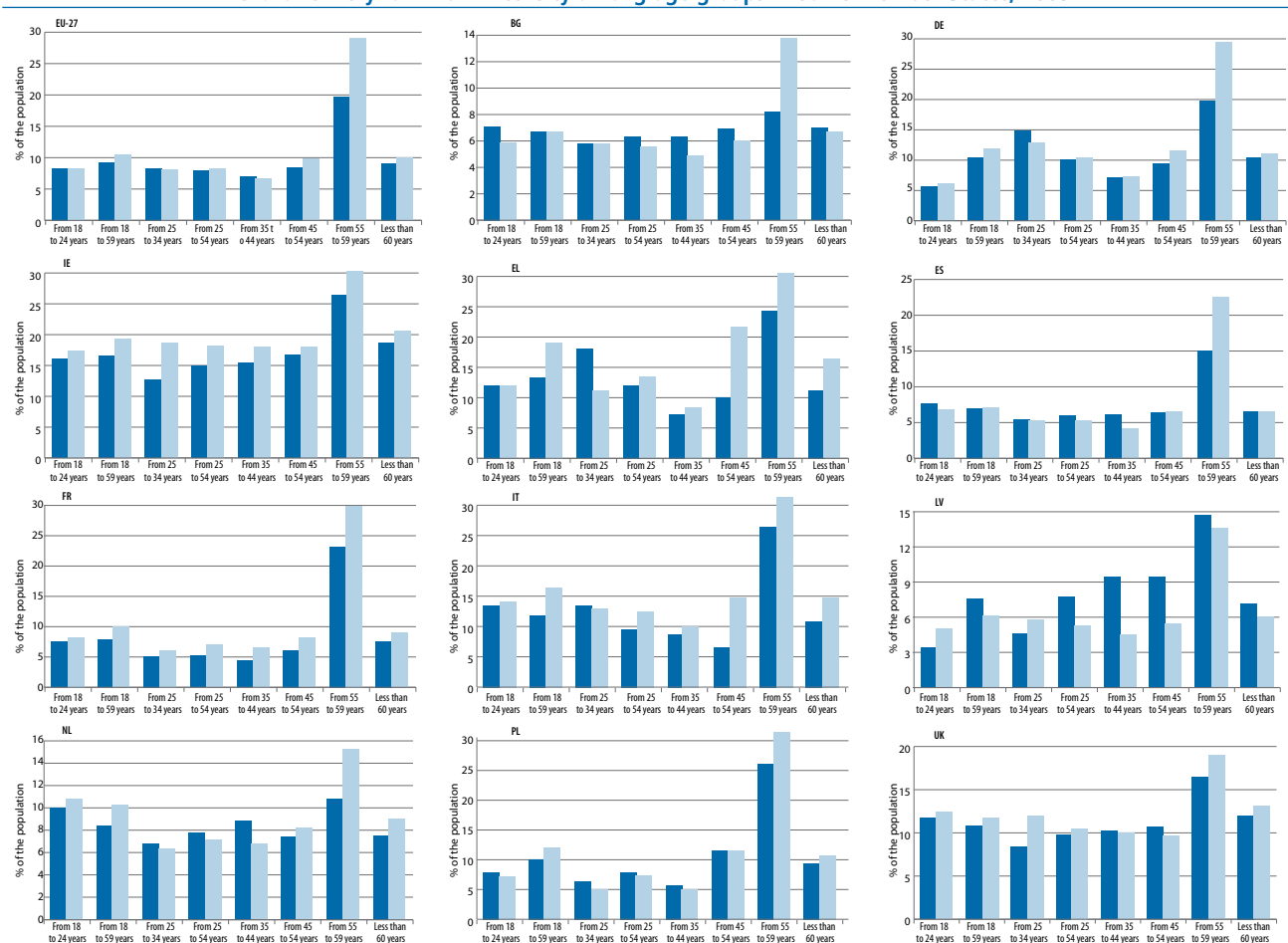
The prevalence of severe material deprivation among unemployed people is also higher than within the whole population (see Chart 17). One unemployed person in five is severely materially deprived in Europe. This evidence shows that unemployment is more than a temporary loss of resources, but has much wider and longer lasting consequences. At the same time, long term unemployment is closely linked to severe material deprivation as a result of the cumulative effects of their loss of revenue.

## 5.3. One in three Europeans aged 18+ at risk of poverty or social exclusion is working

Having a job is commonly seen as the best safeguard against poverty and exclusion, yet 8 % of employed persons live in an at-risk-of-poverty household (in-work poverty), and 5 % suffer from severe material deprivation. Altogether, employed persons represent a significant share of the population at risk of poverty or social exclusion, with almost one person in three of those aged above 18 and at risk of poverty being employed. The share of employed persons at risk of poverty or social exclusion is particularly high in the new Member States but also in southern European countries such as Portugal, Italy, Greece, and Spain.

A more detailed examination of in-work poverty can be found in Chapter 4, which addresses issues such as

Chart 18: Very low work intensity among age groups in some Member States, 2009



Sources: Eurostat, EU SILC (ilc\_lvh11)

low labour force attachment, low wage jobs, and household composition, and the way that can affect participation on the labour market. Gender inequalities are apparent in relation to labour market participation with women aged between 18 and 59 being more commonly found in jobless households in a number of countries (Netherlands, France, Greece, Romania, Ireland, Austria, Italy, Luxembourg, Malta). Moreover, the labour market participation of single mothers is hampered by care responsibilities and lack of public care facilities.

## 5.4. Older persons and risk of poverty or social exclusion

Poverty and social exclusion in old age is a key concern in seeking to achieve the EU-2020 targets. People

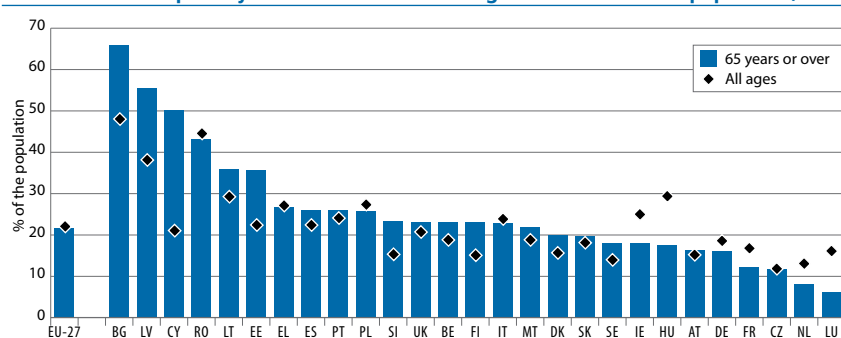
aged 65+ represent 16 % of the population at risk of poverty or social exclusion on average in Europe, with the share rising to 25 % in Bulgaria, Latvia, or Cyprus.

Two types of situation can be observed across EU countries. On the one hand there are the countries in which the oldest generations face lower poverty rates or social exclusion rates. This group includes Ireland, Hungary, Germany, France, Netherlands, and Luxembourg (see Chart 19). In contrast, the risk of poverty or social exclusion increases above the age of 65 in countries such as Latvia, Cyprus, Lithuania, Estonia, Slovenia, and Finland. In Latvia, Lithuania, Slovenia, and Estonia, the rapid improvement in living standards due to economic growth (until the crisis) mainly benefitted the younger age groups, while elderly people faced serious material deprivation as well as monetary poverty.

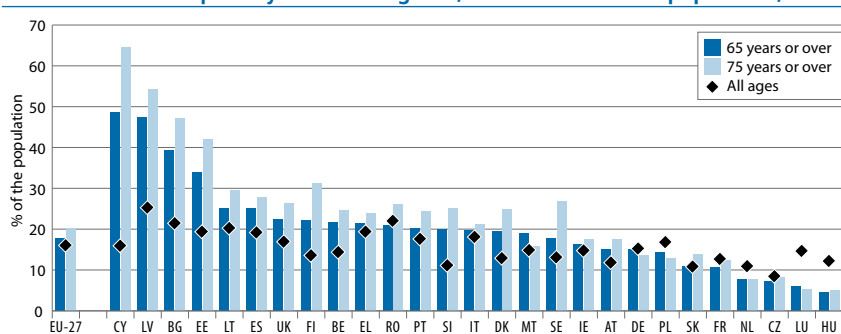
Risk of poverty is relatively high for the elderly in the new Member States, but also in Spain, the United Kingdom, Finland, and Belgium. However, monetary poverty indicators do not take into account housing costs<sup>(36)</sup>, and might, in some cases, present an overly high estimate of the extent of monetary poverty among the elderly in so far as they own their own housing and do not have to devote a part of their revenue to housing expenditures (see European Commission 2010).

The oldest among the elderly tend to live on lower incomes and those

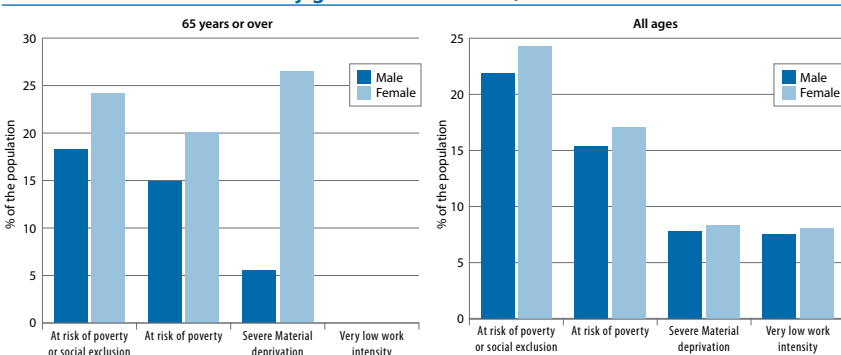
(36) The inclusion or non-inclusion of housing cost has sparked off much debate during the last several years and will probably continue to in the future. The conclusion of the SPC Indicator subgroup was not to include them. Indeed, imputing rents is a difficult exercise, especially at the European level. Real estate prices are so heterogeneous across geographical zones that they could have induced more bias than correcting it.

**Chart 19: Risk of poverty or social exclusion among 65+ and the whole population, 2009**

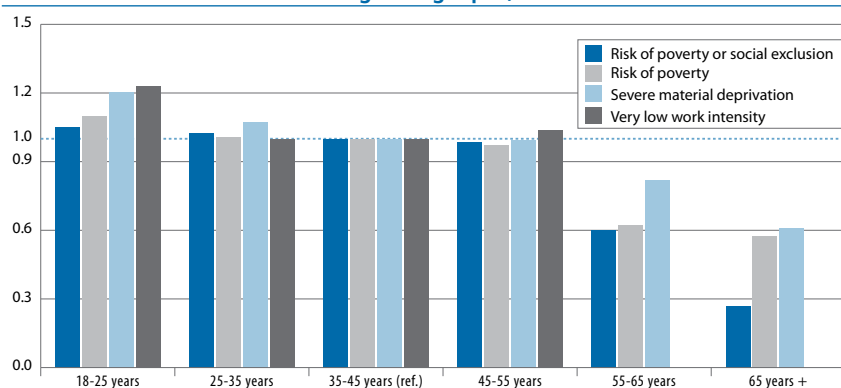
Source: Eurostat, EU SILC (ilc\_li02)

**Chart 20: Risk of poverty rates among 65+, 75+ and the whole population, 2009**

Source: Eurostat, EU SILC (ilc\_pnp1)

**Chart 21: Risk of poverty or social exclusion by gender in the EU-27, 2009**

Source: Eurostat, EU SILC

**Chart 22: Relative impact of age on poverty and social exclusion all things being equal, 2009**

Source: DG EMPL calculations based on EU SILC

**Note:** The graph represents the odd ratios for age breakdowns obtained by a logistic regression on the probability of being at risk of poverty (respectively, severely materially deprived or living in a low work intensity) when taking into account a wide range of variables, such as country, country of birth, age, education, main income source, housing status. See the Annex for more details.

aged 75 and over tend to have a higher risk of poverty (see Chart 20). This reflects, in particular, the lower levels of payments from pension systems developed in the 1950s and 1960s. This can also be attributed to lower accrued pension entitlements and incomplete careers (especially among women, who dominate the older age group) (see European Commission 2008).

The gap between men and women facing monetary poverty varies with age. It is clearly worse for people older than 65 (see Chart 21) than it is for the younger generations. Differences in life expectancy increase the number of widows and therefore single women. Due to incomplete careers, older women often receive lower pensions, even if in many Member States survivor's pensions do give a certain protection from poverty to widows (European Commission 2008).

Beside monetary poverty, women aged over 65 face higher severe material deprivation rates than men in most countries, with a particularly large difference between men and women in Bulgaria, Romania, the Baltic States, Hungary, Poland, Greece, and Portugal.

## 5.5. Single parents are more likely to face risk of poverty or social exclusion

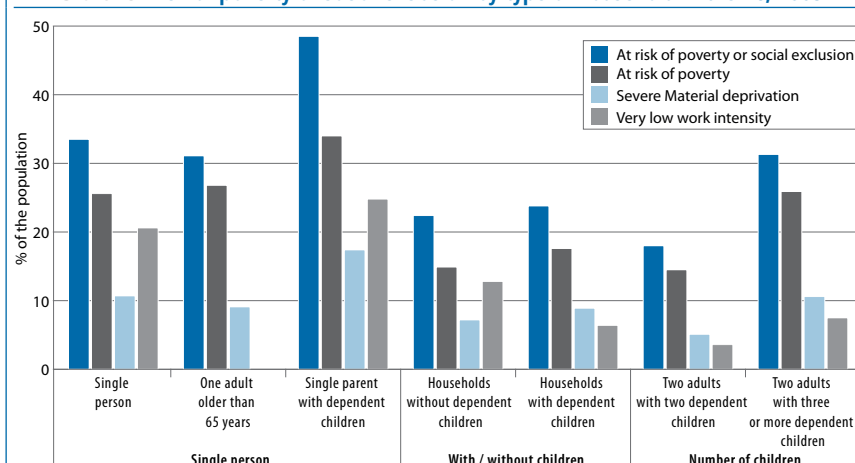
Single parents with dependent children face a high risk of poverty or social exclusion. They represent on average 6% of the population at risk of poverty or social exclusion, while only accounting for 2% of the overall population. All things being equal, they are 3 times more likely to be at risk of poverty or social exclusion than a two parent family with 2 children.

The OECD forecasts that the number of single parents is likely to increase in the next decades<sup>(37)</sup>, which raises serious policy concerns regarding support for single parents, especially in terms of their participation in the labour force. Evidence shows that children in single-parent households are more likely to be living in jobless households than children in two-parent households (see Chart 23 and OECD 2010).

Single-parent poverty and social exclusion is particularly challenging in Ireland, the United Kingdom, the Czech Republic, and Belgium (see Chart 25). In Ireland, single parents and their children represent 15% of the population at risk of poverty or social exclusion, against 6% of the whole population. In Belgium, Germany, and Czech Republic, single parents and their family represent 10% of the population at risk of poverty or social exclusion, and 3-5% of the whole population.

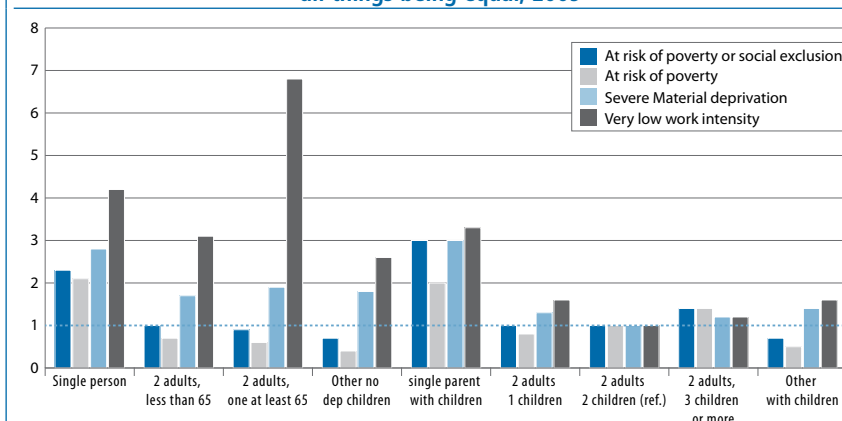
Single adults represent 22% of the population at risk of poverty or social exclusion, whereas they represent 15% of the rest of the population. They also face a higher risk of poverty or social exclusion than other households, as one single adult in three faces the risk of poverty or social exclusion.

Chart 23: Risk of poverty or social exclusion by type of household in the EU, 2009



Sources: Eurostat, EU SILC

Chart 24: Relative impact of household status on poverty and social exclusion all things being equal, 2009



Source: DG EMPL calculations based on EU SILC

**Note:** The graph represents the odds ratios for household types obtained by a logistic regression on the probability of being at risk of poverty (respectively, severely materially deprived or living in a very low work intensity) when taking in account a wide range of variables, such as country, country of birth, age, education, main income source, housing status. The reference situation is for this variable a household of 2 adults and 2 children. As an example, an odds of 3, as the odds ratio for single parents for the risk of poverty, means that, all things being equal, a single parent household is three times more likely to be at risk of poverty than the reference. See the Annex for more details.

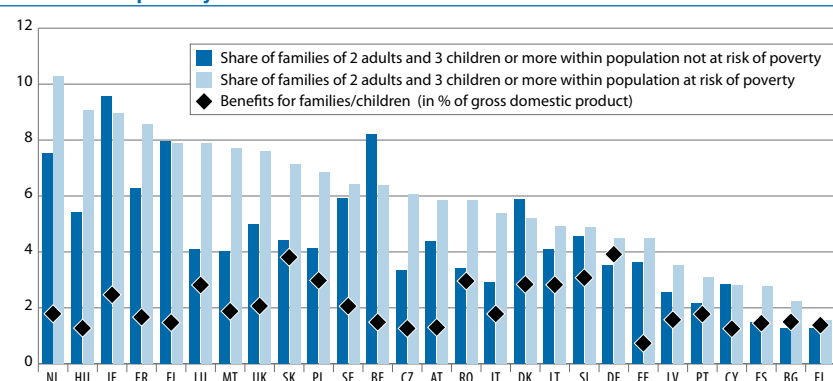
(37) See OECD (2010) *Doing better for families*.



**Chart 25: Share of household types within population at risk of poverty or social exclusion and within the rest of the population in selected Member States, 2009**



Source: DG EMPL calculations based on EU SILC

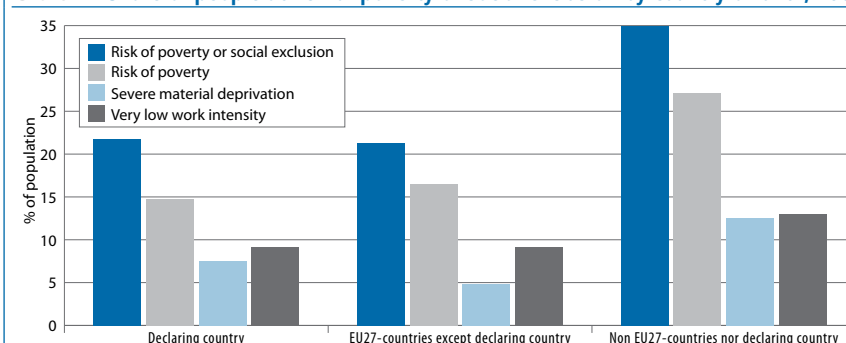
**Chart 26: Relative share of families with 3 children or more within the population at risk of poverty or social exclusion and social benefits for families/children**

Sources: Eurostat, EU SILC (2009) and ESPROSS (2008)

## 5.6. Larger families are strongly exposed to the risk of poverty or social exclusion

Overall, households with or without children face an equal risk of poverty or social exclusion, but the types of poverty they risk differ. Households with dependent children are more likely to face poverty, while households without dependent children are more to be at risk of severe material deprivation.

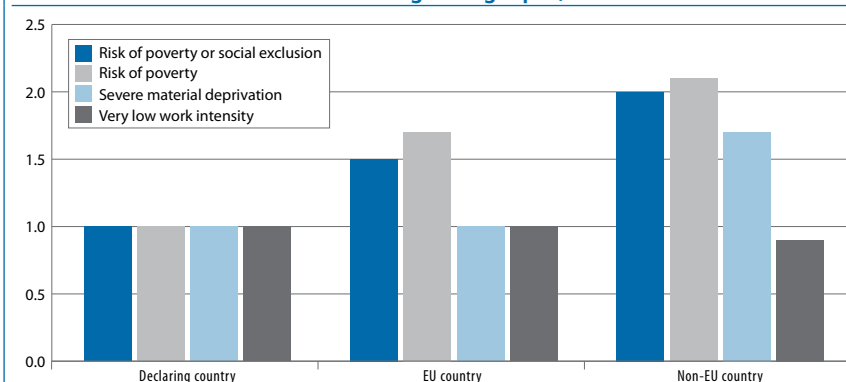
Among families with children, those with 3 or more children are over-represented in the population that is poor or socially excluded in some countries. Other things being equal (in terms of country, educational level...) a family with 3 or more children is 40 % more likely to be at risk of poverty or social exclusion than a family with two dependent children. This is particularly the case in the Czech Republic (6 % of the population the poor or socially excluded, 4 % in the whole population), Poland (7 % vs. 4 %), Hungary (9 % vs. 5 %), and the United Kingdom (8 % vs. 5 %).

**Chart 27: Share of people at risk of poverty or social exclusion by country of birth, 2009**

Sources: Eurostat, EU SILC

## 5.7. People born abroad face higher poverty

Non-EU migrants represent 6 % of the population at risk of poverty or social exclusion in Europe, while EU migrants account for 2.4 %. As migrants generally achieve lower educational levels<sup>(38)</sup>, they are inevitably over-represented in low paid jobs or unemployment, which puts them at a greater risk of poverty (Chart 27). At comparable educational level, age, and country of residence, a non-EU migrant is twice as likely to face the risk of poverty or social exclusion as a person born in the country of residence<sup>(39)</sup> (1.4 times in the case of an EU-migrant, see Chart 28).

**Chart 28: Risk of poverty or social exclusion by country of birth all things being equal, 2009**

Source: DG EMPL calculations based on EU SILC

**Note:** The graph represents the odds ratios for groups of countries of birth types obtained by a logistic regression on the probability of being at risk of poverty (respectively, severely materially deprived or living in a low work intensity) when taking into account a wide range of variables, such as country, country of birth, age, education, main income source, housing status. The reference situation is for this variable a person born in the declaring country. As an example, an odds of 2, as the odds ratio for people born in non-EU countries, means that, all things being equal (education level, age), a person born abroad is 2 times more likely to be at risk of poverty than the reference. See the Annex for more details.

(38) See European Commission 2010 "Older, more numerous and diverse Europeans" Demography Report.

(39) Results of the logistic regression are put in Annex 3.

Migrants experience higher rates of poverty than the rest of the population and, all things being equal, non-EU migrants are also more likely to be materially deprived.

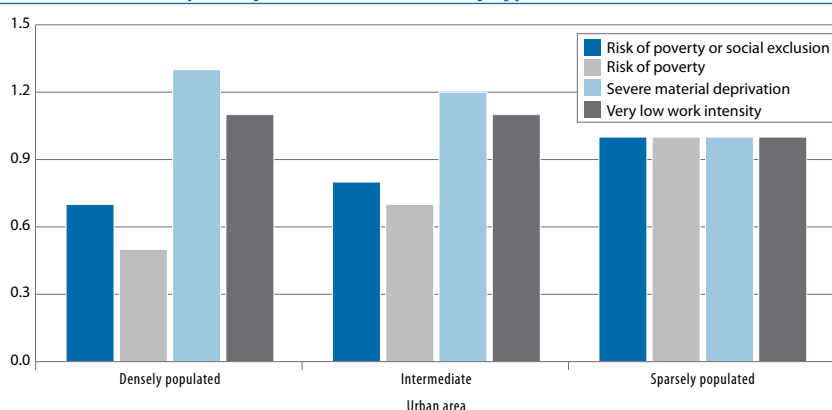
However, while the risk of very low work intensity is higher for non-EU migrants than the rest of the population, this difference is due to other effects (such as education). On this basis non-EU migrants are slightly less likely to belong to very low work intensity households, i.e. to be benefit-dependant, than native citizens, and there is no difference (all things being equal) between EU-migrants and citizens born in the declaring country.

## 5.8. Risk of poverty in sparsely populated areas of Southern Europe and New Member States, low work intensity in the towns of Western Europe

Breaking the 'vicious circle' of rural poverty is seen as a priority in the European Commission report 'Combating poverty in rural areas' while urbanisation also generates different forms of poverty and social exclusion.

The EU faces two trends with respect to poverty and social exclusion in urban and rural areas. In most new Member States, where rural areas are more significant in terms of population, as well as in Southern European countries such as Portugal, Italy, Greece, and Spain, the risk of poverty or social exclusion is lower in densely populated areas than in urban areas (see Chart 29). On the contrary, sparsely populated areas face higher risks of poverty or social exclusion. However, the risk of poverty is more concentrated in the densely populated areas of Western and Northern European countries than it is in their rural areas.

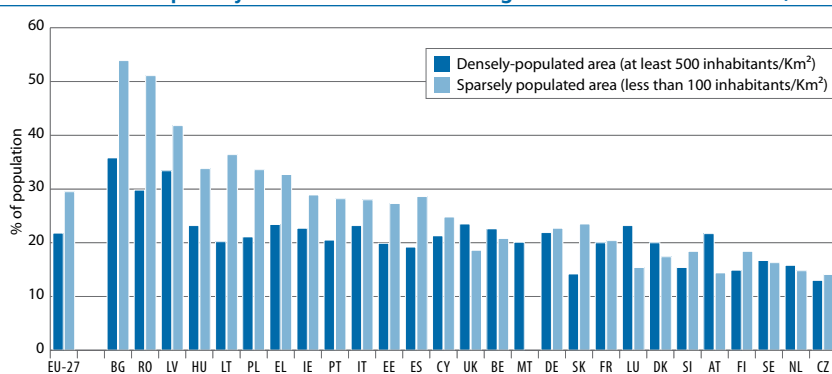
Chart 29: Risk of poverty or social exclusion by type of rural or urban areas, 2009



Source: DG EMPL calculations based on EU SILC

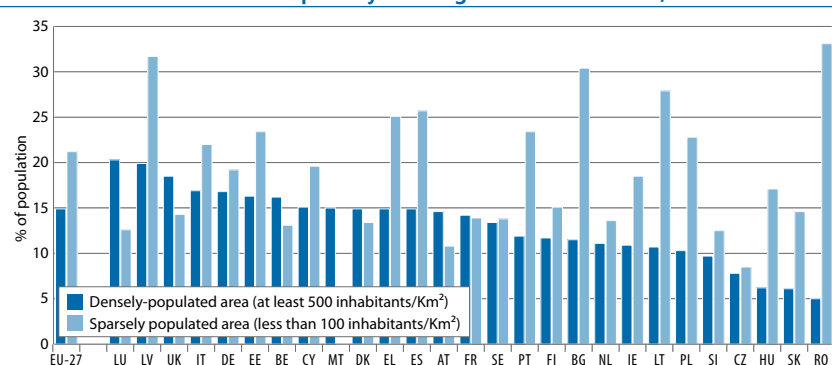
Note: The graph represents the odds ratios for geographical areas obtained by a logistic regression on the probability of being at risk of poverty (respectively, severely materially deprived or living in a low work intensity) when taking into account a wide range of variables, such as country, country of birth, age, education, main income source, housing status. The reference situation is for this variable a person living in a sparsely populated area. As an example, a person with an odds of 0.5, as the odds ratio for people living in densely populated areas are, all things being equal (educational level, age), twice less likely to be at risk of poverty than the reference. See the Annex for more details.

Chart 30: Risk of poverty or social exclusion and degree of urbanisation in EU-27, 2009



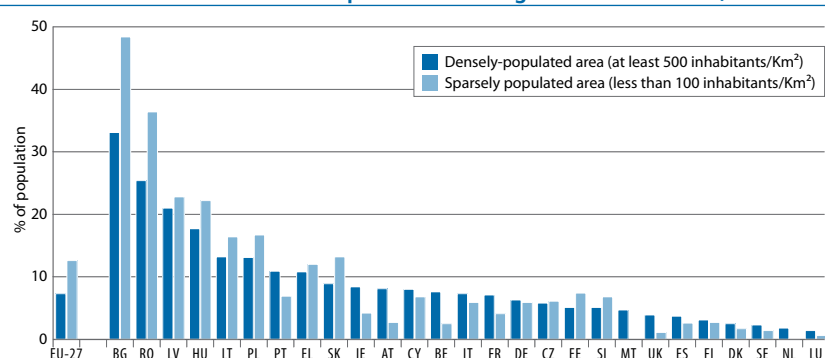
Source: Eurostat, EU SILC (ilc\_peos13)

Chart 31: Risk of poverty and degree of urbanisation, 2009



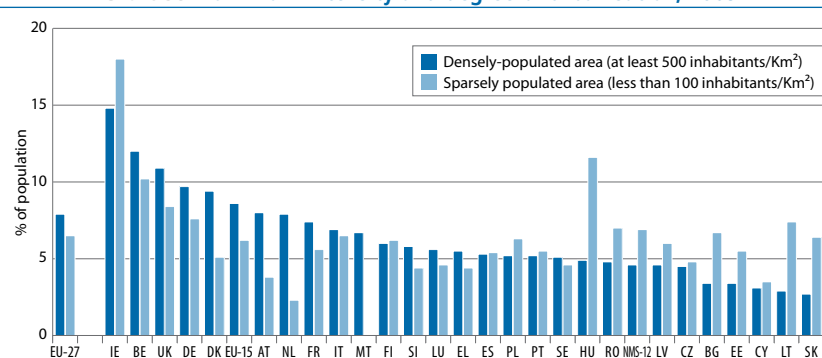
Source: Eurostat, EU SILC (olc\_li43)

Chart 32: Severe material deprivation and degree of urbanisation, 2009



Source: Eurostat, EU SILC (ilc\_lvh133)

Chart 33: Low work intensity and degree of urbanisation, 2009



Source: Eurostat, EU SILC (ilc\_lvh123)

The risks of poverty and material deprivation are higher in sparsely populated areas (see Chart 30), with the gap between populated and sparsely populated areas being particularly great in the New Member States, but also Ireland, Portugal, Spain, and Greece.

Controlling for a number of variables (country, educational level, household type...), a person is almost twice as likely to be poor or materially deprived in a rural area than in a densely populated area (see Charts 29, 30, 31, 32). On the other hand, very low work intensity is at its lowest in sparsely populated areas, while jobless households are more numerous in most densely populated areas. This is especially the case in Western European countries, notably Ireland, Belgium, the United Kingdom, Germany, Denmark, Austria, and France (Chart 33).

However, the relationship between population density and work intensity is weak on an 'all things being equal' basis (see Annex 3) indicating that differences appear to be due to structural factors (education, age...) rather than geographical location.

These opposing patterns raise policy issues concerning the relative prospects of obtaining well-paid jobs in urban as opposed to rural areas. This could mean that while people in sparsely populated areas do have access to the labour market, but that access fails to prevent them from being at risk of monetary poverty or providing sufficient material goods because of the nature of the work available. Future research could investigate the reasons of in-work poverty in rural areas.

## 6. MAIN FINDINGS

The EU committed itself in 2010 to reduce by 20 million the number of people at risk of poverty or social exclusion by 2020. This is a major milestone in the strengthening of a social Europe. First of all, the target reflects a strong commitment of Member States to fight poverty and social exclusion as part of an integrated strategy for smart, sustainable, and inclusive growth. It will support the design of coordinated policy initiatives and the assessment of their results and be accompanied by a regular and common monitoring of poverty and social exclusion in Member States. Secondly, the agreed target enlarges the notion of poverty solely based on relative monetary terms, as it covers every European at risk of poverty or severe material deprivation or living in a jobless household. The composite nature of the target therefore captures a mix of relative and absolute aspects of poverty quite appropriate to measure social inclusion in an enlarged, varied, and changing Europe.

The setting of this target is a breakthrough. But as the definition of the target was discussed at the highest political level, the shortcomings and weaknesses of the measurement of poverty were brought to light. Areas for improvement were also highlighted by the Council. For example, many Member States are investing in the provision of in-kind services, such as childcare, as a means to combat poverty. The free provision of such

services has real and direct impacts on people's welfare and labour market participation, but this is not adequately reflected in the current measures of poverty and social exclusion. It will also be important, in view of the mid-term review of the target in 2015 to improve the measurement of material deprivation, by including for example more dimensions, like access to services, new technologies, or by integrating some variability within Member States. Another weakness of the available measures of poverty is the significant time lag with which data becomes available. Identifying the policies that work and monitoring the effectiveness of the measures taken would require more timely data or adequate simulation tools, such as Euromod.

Furthermore, we need to investigate further the characteristics of the population identified by the new combined indicator. This is important from a conceptual point of view to ensure that the three combined indicators indeed capture situations of poverty and social exclusion. Can people living in a jobless household but with a high income level be considered socially excluded? There is also a political dimension to the debate. For example, should disabled persons be considered as part of the target when they are living in a household with low work intensity but are not at risk of poverty? Should they be reactivated on the labour market? And how should students be included in a risk of poverty

and social exclusion target? In some countries, students have left parental homes and live on very low income, but they have access to benefits in kind (subsidised housing, free transport, etc.) that might prevent them from social exclusion. Specific indicators may be needed to monitor the situation of young people.

In 2009, 114 million Europeans were at risk of poverty or social exclusion, i.e. 23 % of the EU population. However, poverty and social exclusion are not uniformly spread among the Union. Bulgaria and Romania face massive material deprivation. In other eastern Member States, namely Hungary, the Czech Republic, and Slovakia, the different components of poverty and social exclusion hardly overlap, showing that different population groups experience different forms of poverty or social exclusion, calling for differentiated policy response. In some Western and Northern Member States, often with well-developed welfare states, labour market exclusion is the predominant issue. Lastly, in other Member States, an important share of the targeted population is at risk of poverty, but not necessarily materially deprived or excluded from the labour market. Each of these forms requires adapted political answers, focusing on labour market inclusion, on redistribution or inactivity traps.

A better knowledge of the people at risk of poverty or social exclusion also helps to prepare political action.

Evidence shows that 60% of the working age people at risk of poverty or social exclusion are out of work. A significant share of these people is unemployed. Another part is less than 60 years old but is already retired. This part should progressively be reduced as measures to increase older workers employment rates will take effect in Member States. Other inactive people of working age and at risk of poverty and social exclusion include students, disabled persons, and inactive persons fulfilling domestic tasks.

Students represent a significant share of the people at risk of poverty or social exclusion. This is especially the case in countries where they leave the parental home early. In these countries, students live on low income, but they have access to a range of services, such as subsidised health-care, housing and transport, public internet access, and other facilities that allows them to enjoy a certain degree of autonomy and to participate in society. It is therefore worth addressing the question of whether they need further support. In other countries, students cannot afford to leave the parental home and fully depend on family resources. The lack of access to resources and to support services might hamper their mobility and capacity to find a job, have training opportunities, or to form a family.

Evidence shows that permanently disabled people are over-represented among people at risk of poverty or social exclusion. This raises issues about

the adequacy and design of policy tools. In countries where the disabled are predominantly poor and severely deprived, this raises the issue of the adequacy of disability benefits. In countries where the disabled are especially over-represented in the group of people that are living in jobless households but are neither poor nor severely deprived, it raises the issue of whether or not they belong to the target. From a monetary point of view, they cannot be considered as 'poor', but they could be considered at risk of social exclusion, in the narrow sense of labour market exclusion at least. It belongs now to the social and political debate to decide whether the measures to encourage and facilitate labour market participation should target all those who can work, or all those who can and want to work.

Evidence also shows that having a job remains a safeguard against poverty and exclusion. Yet employed persons represent a significant share of the population at risk of poverty or social exclusion, with almost one person in three of those aged above 18 and at risk of poverty being employed. In-work poverty will be analysed in further detail in Chapter 4.

Older persons also face poverty and social exclusion. Two scenarios can be observed across EU countries with respect to this age group. On the one hand there are the countries in which the oldest generations face lower poverty or social exclusion rates. In contrast, the risk of poverty

or social exclusion increases above the age of 65 in other countries. The gap between men and women facing monetary poverty is also clearly deeper for people older than 65 than it is for the younger generations.

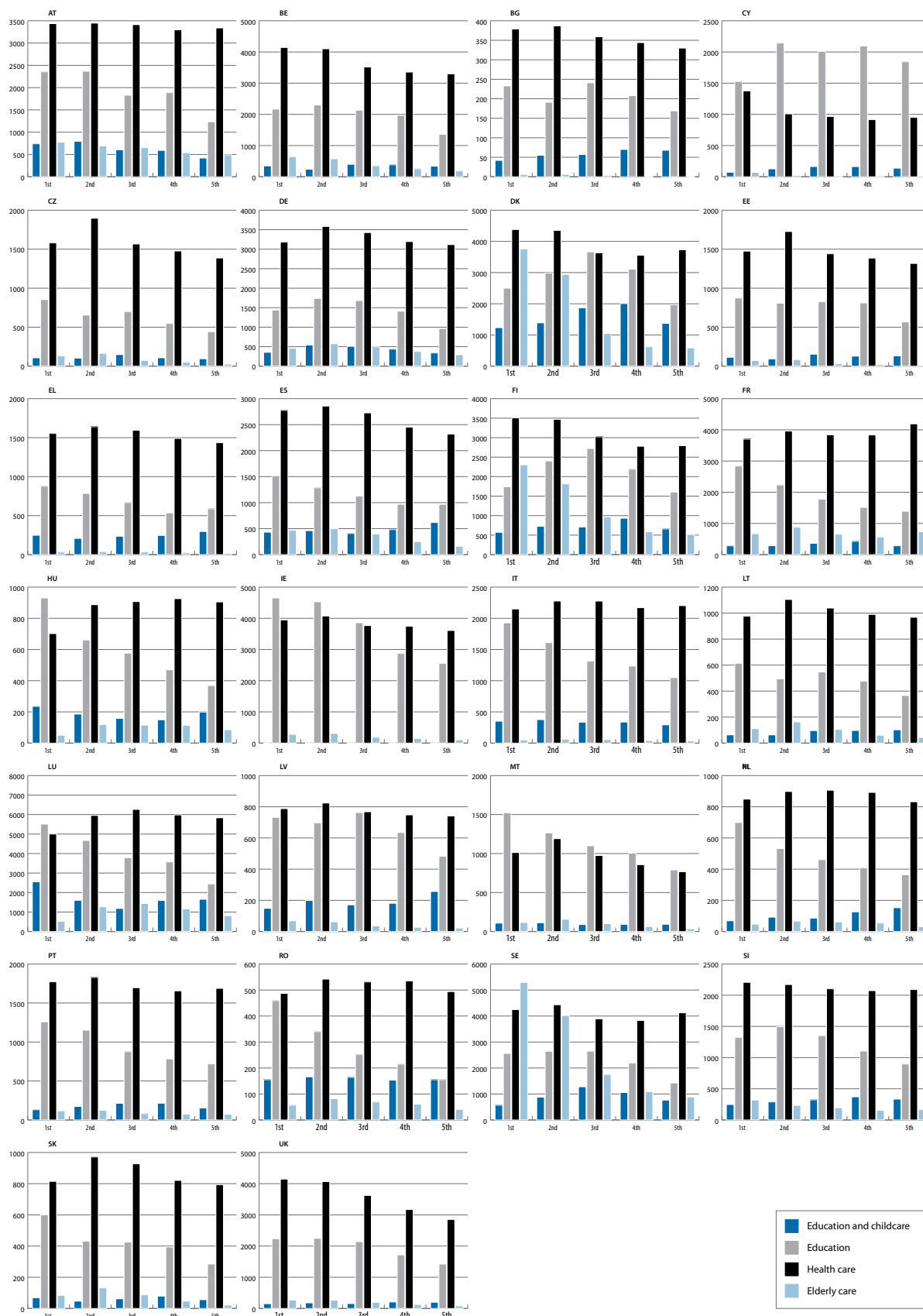
Single parents with dependent children are facing a high risk of poverty or social exclusion. They represent on average 6% of the population at risk of poverty or social exclusion while only accounting for 2% of the overall population. All things being equal, they are 3 times more likely to be at risk of poverty or social exclusion than a two-parent family with 2 children.

Non-EU Migrants represent 6% of the population at risk of poverty or social exclusion in Europe, while EU migrants account for 2%. As migrants generally achieve lower educational levels, they are inevitably over-represented in low paid jobs or unemployment, which puts them at a greater risk of poverty. But at comparable educational level, age, and country of residence, a non-EU migrant is twice as likely to face the risk of poverty or social exclusion as a person born in the country of residence.

Finally, the EU faces diverse trends with respect to poverty and social exclusion in urban and rural areas. The risk of poverty is more concentrated in the densely populated areas, especially in Western and Northern European countries. On the contrary, sparsely populated areas face higher risks of poverty or social exclusion.

## ANNEX 1: ESTIMATED DISTRIBUTION OF IN-KIND BENEFITS (COMPLEMENT TO CHART 6)

Distribution of in-kind benefits across income quintile (in euros)

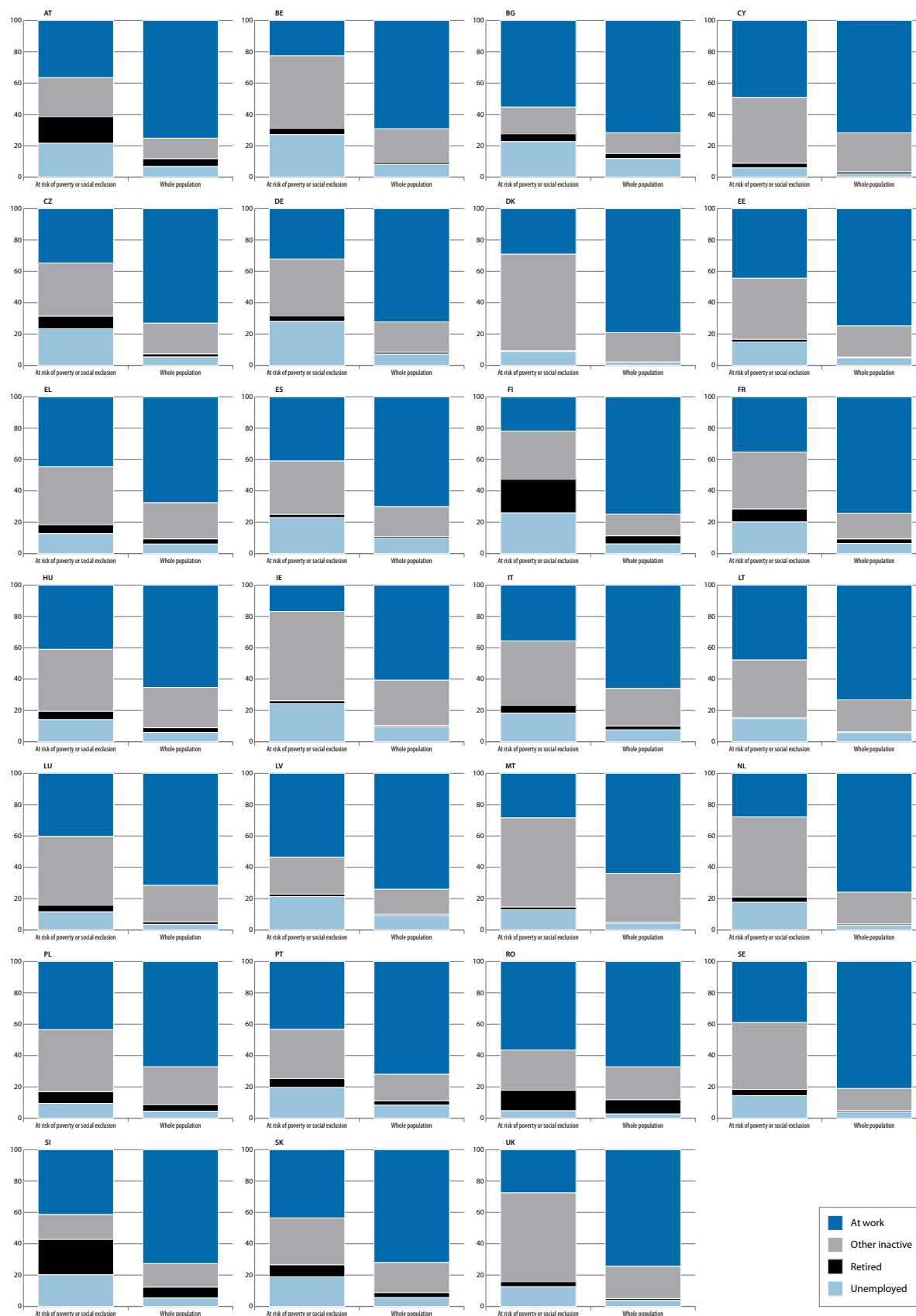


Source: EU SILC 2009, DG EMPL's calculation



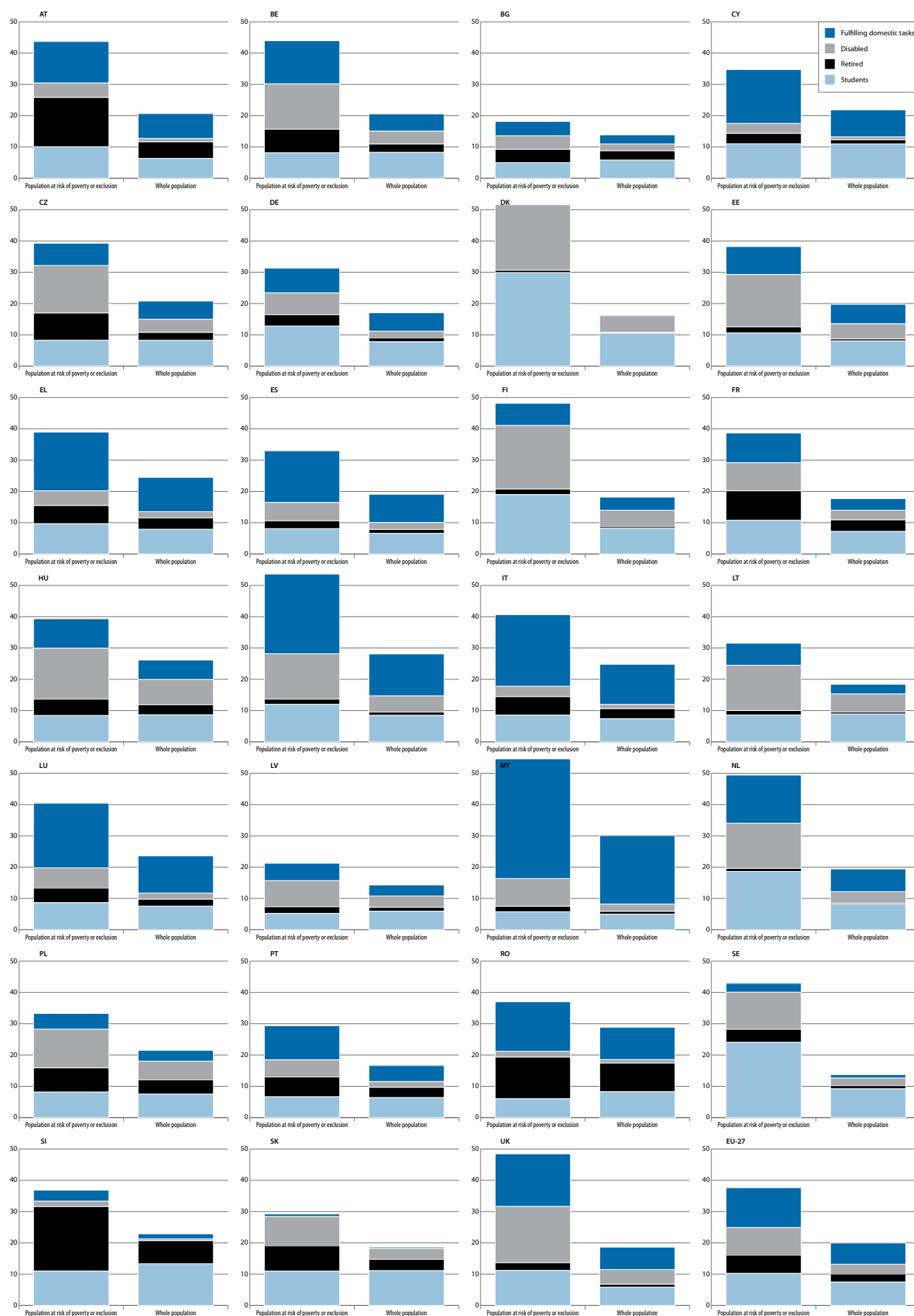
## ANNEX 2: COMPOSITION OF THE POPULATION AT RISK OF POVERTY OR SOCIAL EXCLUSION

Activity status of the population by risk of poverty or social exclusion (complement to Chart 14)  
 (% of the national population aged 18-59)



Source: EU SILC 2009, DG EMPL's calculation

**Composition of inactive population of working age by risk of poverty or social exclusion, 2009 (complement to Chart 15)**  
 (% of the national population aged 18-59)



## ANNEX 3: RISK OF POVERTY OR SOCIAL EXCLUSION, ALL THINGS BEING EQUAL

Probability of being at risk of poverty or social exclusion (Logistic regressions)

		Risk of poverty or social exclusion			Risk of poverty			Severe material deprivation			Low work intensity		
		Odds ratio	Confidence interval		Odds ratio	Confidence interval		Odds ratio	Confidence interval		Odds ratio	Confidence interval	
Activity status	At work	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.2	0.2	0.2
	Working part time	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.5	0.6	0.4	0.4	0.5
	Unemployed (ref.)												
	Student	0.4	0.4	0.4	0.5	0.4	0.5	0.3	0.3	0.4	1.6	1.5	1.7
	Retired	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.5	0.6	2.8	2.7	3.0
	Disabled	0.8	0.8	0.9	0.4	0.4	0.4	0.8	0.8	0.9	0.9	0.9	1.0
	Fullfilling domestic tasks	0.3	0.2	0.5	0.3	0.2	0.4	0.5	0.3	0.9	0.6	0.4	1.0
	Other inactives	0.8	0.7	0.8	0.7	0.7	0.8	0.7	0.7	0.8	1.3	1.2	1.4
Age	18-25 years	1.1	1.0	1.1	1.1	1.0	1.2	1.2	1.1	1.3	1.2	1.2	1.3
	25-35 years	1.0	1.0	1.1	1.0	1.0	1.0	1.1	1.0	1.1	1.0	0.9	1.1
	35-45 years (ref.)												
	45-55 years	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.1
	55-65 years	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.9	14.0	13.3	14.7
	65 years or more	0.3	0.3	0.3	0.6	0.5	0.6	0.6	0.6	0.7	-	-	-
Sex	Men	1.0	1.0	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.4	1.4	1.5
Urban area	Densely	0.7	0.7	0.7	0.5	0.5	0.6	1.3	1.3	1.4	1.1	1.1	1.2
	Inter.	0.8	0.8	0.9	0.7	0.7	0.7	1.2	1.1	1.2	1.1	1.0	1.1
	Sparsely (ref.)												
Household type	1 pers	2.3	2.2	2.5	2.1	1.9	2.2	2.8	2.6	3.0	4.2	3.8	4.6
	2 adults, less than 65	1.0	1.0	1.1	0.7	0.7	0.7	1.7	1.6	1.9	3.1	2.9	3.3
	2 ad. , one at least > 65	0.9	0.8	0.9	0.6	0.6	0.7	1.9	1.8	2.0	6.8	6.2	7.4
	Other no dep chd	0.7	0.6	0.7	0.4	0.3	0.4	1.8	1.7	1.9	2.6	2.4	2.8
	Single parent with children	3.0	2.8	3.2	2.0	1.9	2.2	3.0	2.7	3.2	3.3	3.0	3.6
	2 adults 1 chd	1.0	0.9	1.0	0.8	0.8	0.9	1.3	1.2	1.4	1.6	1.5	1.7
	2 adults 2 children (ref.)												
	2 ad, 3 chd or more	1.4	1.3	1.5	1.4	1.3	1.4	1.2	1.1	1.3	1.2	1.1	1.3
	Other with children	0.7	0.7	0.8	0.5	0.5	0.6	1.4	1.3	1.5	1.6	1.5	1.7
	Others	1.1	0.9	1.3	0.9	0.7	1.1	2.0	1.6	2.5	1.4	1.1	1.9
Household size		1.1	1.1	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.0	1.1
Main income	From work (ref.)												
	From pensions	4.7	4.6	4.9	3.8	3.7	4.0	1.0	1.0	1.1	6.6	6.4	6.8
	From other social transfers	11.7	11.3	12.2	8.3	8.0	8.6	1.8	1.8	1.9	9.3	8.9	9.7
	Other income	4.7	4.4	5.0	3.9	3.6	4.2	0.8	0.7	0.9	9.6	8.9	10.3
Tenant status (ref=tenant reduced rate or free)	Outright owner	0.6	0.6	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.9	0.8	0.9
	Owner with mortgage	0.5	0.4	0.5	0.4	0.4	0.4	0.7	0.6	0.7	0.6	0.6	0.6
	Tenant market rate	1.1	1.1	1.2	1.0	1.0	1.1	1.4	1.3	1.5	1.0	1.0	1.1
	Tenant market rate												
Country of birth	EU country	1.5	1.4	1.5	1.7	1.6	1.8	1.0	0.9	1.1	1.0	0.9	1.1
	Non-EU country	2.0	2.0	2.1	2.1	2.0	2.2	1.7	1.6	1.8	0.9	0.9	1.0
Education level	Primary /lower secondary (ref.)												
	Secondary education	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
	Tertiary education	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	1.0	1.0	1.0
Distance to poverty threshold								0.3	0.3	0.3	0.9	0.9	1.0

Source: EU SILC 2009, DG EMPL's calculation

**Reading note:** The odds ratios are obtained by a logistic regression on the probability of being at risk of poverty or social exclusion (respectively at risk of poverty, severely materially deprived or living in a low work intensity) when taking into account a wide range of variables, such as sex, age, education, country of birth, main income source, housing status. The odds ratio measures the difference between the category and the reference. For example an odds of 11 for income from social transfers means that people in this category are 11 times as likely as being at risk of poverty or social exclusion than people from the reference category, whose main income comes from work. Country dummies have been integrated to capture national specificities. The distance to the poverty threshold is computed as the ratio between the household income and its relative at-risk-of-poverty threshold.

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# Is working enough to avoid poverty? In-work poverty mechanisms and policies in the EU

## 1. INTRODUCTION

Job creation has been at the heart of the Lisbon Strategy, launched in 2000, and the follow-up European Employment Strategy, with 20 million additional jobs being created in the decade before the current crisis. However, there is some concern about the quality of many of those jobs, not least in terms of pay and job security, and the need to strengthen the links between job creation policies and those intended to reduce poverty.

The issue of in-work poverty has gained importance in the policy debates in the EU and in the Member States. Although it is clear that, while employment is the most important factor in preventing poverty, it is also true that the phenomenon of monetary in-work poverty is nonetheless all too real.

In the EU as a whole, the risk of working age adults facing monetary poverty is twice higher for those without work than it is for those in work (16 % against 8 %) and this risk increases to 43 % for those who are unemployed.

However, a job is no guarantee against the risk of being in poverty and the chapter on in-work poverty in the OECD (2009) Employment Outlook warns about the possible

negative impact of the crisis on poverty, calling for action from the Member States. Likewise Eurofound (2010) has devoted a report to the issue, although it is focused on the pre-crisis period, and other research has been devoted to analyse the role and the impact of different policies.

Employment is the best route out of poverty. However, in order for poverty to be avoided, the job in question has to meet certain requirements. In fact, in-work poverty is known to be linked to the specific employment circumstances of individuals such as low pay, low skills, precarious employment, and involuntary part-time work, which can often result in low yearly earnings. In addition, poverty can also be linked to the household circumstances of the people concerned, such as the size and composition of households and low work intensity. The latter reflect situations where there are too few adults in the household who are working or, if they are, not working enough to achieve an adequate income (working too few hours or only working for part of the year). In this respect, single and lone parent households, as well as one-earner families, are seen to face the highest risks of poverty.

Increased labour market segmentation, reflected in the development of temporary work, involuntary part-time work or self employment, and

sometimes stagnating wages, has increased the number of individuals with low earnings and all too often these low paid or precarious jobs do not serve as stepping stones towards better jobs<sup>(1)</sup>.

This chapter reviews, in the first section, overall trends in poverty in work, and describes the impact of individual and household characteristics, as well as labour market attachment, including by econometric analysis. The following section assesses the relation between in-work poverty and work intensity, using the new definition adopted by the Social Protection Committee<sup>(2)</sup>. The last two sections are devoted to the policy instruments and the policy approaches followed by Member States to addressing in-work poverty. These policies are classified in three broad groups: policies that support wages and incomes; policies supporting the labour market participation of groups at risk of poverty; and policies to provide access to enabling services.

(1) See special focus on labour market segmentation in the EU Employment and Social Situation Quarterly Review, autumn 2011.

(2) In June 2010, the SPC adopted a new definition of household work intensity to underpin one the labour market exclusion component of the EU 2020 headline target on poverty and social exclusion. See Box 3.5 in Chapter 4.3 for full definition.



## 2. IN-WORK POVERTY IN THE EU

### 2.1. In-work poverty remained stable at the EU level but with substantial variation between the EU countries

Despite periods of employment growth in the years before the crisis, the proportion of people living in poverty has been relatively stable in recent years, and this has also been the case with respect to in-work poverty<sup>(3)</sup>. The overall risk of monetary poverty in the EU in 2009 is some 16.1%, with the average risk of in-work monetary poverty being a little over half that rate (8.4%).

However, there are considerable variations between countries in the EU (Table 1): in-work poverty is above 10% in Greece, Spain, Lithuania, Poland, Portugal, Romania, Italy, and Latvia, while it is the lowest - under 5% - in the Czech Republic, Finland, Slovenia, and Belgium.

On average in the EU, the proportion of working poor has remained stable over recent years, including in the period of sustained employment growth before the crisis. It is not possible to draw conclusions yet concerning the impact of the current recession since, for many countries, the latest (2009) data refer only to 2008 income. However, in-work poverty seems to have been fairly stable in the lead up to the crisis<sup>(4)</sup>.

(3) The poverty measure discussed in this chapter concerns only the monetary poverty or monetary in-work poverty; thus it includes neither the material deprivation nor the risk of being socially excluded.

(4) Different reasons might explain this apparent stability. First, in-work poverty is a relative measure and therefore it is affected by variations in the median income. Second, the crisis has had a lagged impact on the real economy. See Chapter 2 for further analysis.

Table 1: In-work poverty developments in 2005-2009

GEO/ TIME	2005	2006	2007	2008	2009
EU (s)	8.2	8.2	8.5	8.6	8.4
BE	3.9	4.2	4.4	4.8	4.6
BG	:	5.4	5.8	7.5	7.4
CZ	3.5	3.5	3.3	3.6	3.1
DK	4.9	4.5	4.2	5.1	5.9
DE	4.8	5.5	7.5	7.1	6.8
EE	7.5	7.5	7.8	7.3	8.1
IE	6.1	6.2	5.6	6.5	5.4
EL	12.9	13.9	14.3	14.3	13.8
ES	10.4	9.9	10.7	10.7	11.4
FR	6.1	6.1	6.5	6.8	6.7
IT	8.8	9.6	9.8	8.9	10.2
CY	6.5	7.2	6.3	6.4	7.0
LV	9.0	11.2	9.7	11.0	11.1
LT	10.0	9.9	8.0	9.4	10.4
LU	9.8	10.3	9.3	9.4	10.0
HU	8.8	6.8	5.8	5.8	6.2
MT	4.8	4.4	4.5	5.0	5.7
NL	5.8	4.4	4.6	4.8	5.0
AT	6.7	6.4	6.1	6.4	5.9
PL	13.9	12.8	11.7	11.5	11.0
PT	11.9	11.3	9.7	11.8	10.3
RO	:	:	18.5	17.7	17.9
SK	4.6	4.8	4.7	5.1	4.8
SI	8.9	6.3	4.9	5.8	5.2
FI	3.7	4.5	5.0	5.1	3.7
SE	5.5	7.4	6.5	6.8	6.9
UK	8.3	7.8	8.0	8.5	6.7

Source: Eurostat, EU SILC

Note: EU SILC 2005-2009, income year 2004-2008, except for UK (income year 2005-2009) and IE (moving income periods); (s) Data for EU-27 2005-2006 Eurostat estimates; Data for BG 2005 and RO 2005-2006 not available

If this is confirmed, it suggests that creating jobs is not enough to decrease poverty, and that more refined and targeted policies are needed in order to combat poverty and in-work poverty.

In most European countries the in-work poverty rate has been relatively stable, but with a slight tendency to converge toward the EU average. In effect those Member States that had been below the EU average – such as Denmark, Germany, Malta, and Sweden – saw their in-work poverty rate increase between 2005 and 2009 by some 1pp or more while in Poland and Slovakia, where in-work poverty were above the EU average in 2005, the in-work poverty rate decreased.

Having a job is the best way in seeking to avoid poverty since poverty is much lower among those who work (8.4% on average) compared with people who are inactive (26% on average)

or unemployed (45% on average). However, having any type of job is not enough. A low labour market attachment in terms of hours worked, or poor contractual conditions, can still result in poverty.

Crettaz (2001) has identified three main sources of in-work poverty: low work intensity, family composition, and low wages, with the interaction of these three factors determining the outcome for the individual and the household as a whole.

However, having a low wage job will not, of itself, necessarily push someone into poverty, any more than having only a part time or temporary job, since family composition is also a major factor affecting the individual situation.

### 2.2. The number of dependants in a household is decisive for in-work poverty

As indicated earlier, household composition has an impact on whether its members can be considered poor or not, operating through the number of people dependent on the total income of the household and, more indirectly, through the impact on the labour market participation of household members.

Since the resources are shared between the household's members, looking at employment at the household level provides an indicator of the welfare implications of labour market status<sup>(5)</sup>. For example, a female spouse who works part-time and relies on her husband's earnings as the main source of household income will probably not be on a low (equivalised) income. Similarly, a young person who has just entered the labour market with a low starting salary may still be living with parents and enjoying a relatively high real living standard. On the other hand, a household in which only one adult

(5) Eurostat (2005).

Box 3.1: In-work at risk of poverty: methodological definitions<sup>(1)</sup>***In-work at risk of poverty***

In defining in-work (monetary) poverty, the income for people who are employed is calculated for households, but the poverty status is assigned to the individual. This means that in-work poverty, when measured, is influenced by both the total disposable income (including non-wage income) and the household composition. The assumption of equal sharing of resources within households (giving the so-called equivalised income) that underlies the definition of monetary income poverty means that the economic well-being of individuals depends on the total resources contributed by all members of the households. In this respect some income can move from one household member to the other without affecting the actual income of the individual. Hence, measuring attachment to the labour market at the level of households provides a better indicator of the welfare implications associated with labour market status than individual employment rates.

The risk of in-work poverty measure counts the number of employed people whose disposable income is below 60 % of the median equivalised income of their country.

***Income/disposable income***

Household income comes from different sources. Employment is generally the main source of income but it is not the only one. Individuals may receive transfers from the state (e.g. unemployment benefits, pensions, etc.); property income (e.g. dividends from financial assets, etc.); and income from other sources (e.g. rental income from property or from the sale of property or goods, etc.).

***Employed<sup>(2)</sup>***

In LFS people are defined as employed if they are aged 15 years or over and if, during the reference week, they performed work (even for just one hour a week) for pay, profit, or family gain, or who were not at work but had a job or business from which they were temporarily absent because of illness, holidays, industrial dispute, education and training, or other reasons.

In EU SILC, people are defined as employed based on the self-declared economic status.

***Working full year/less than full year***

Working full year corresponds to working during the total number of months for which information on the activity status has been provided. Less than full year corresponds to working for more than half, but less than all, the numbers of the months for which information on activity status is provided.

***Full-time/part-time working***

This variable refers to the main job with the designation of full-time and part-time work as self-reported by the respondent.

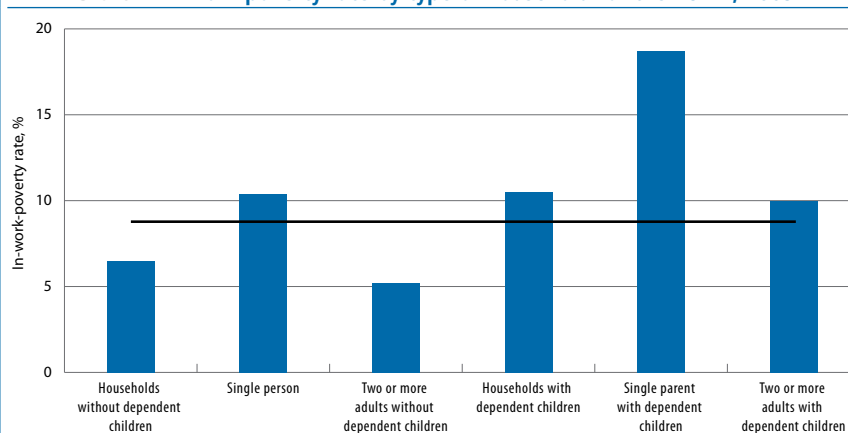
(1) Eurostat (2005).

(2) The age-group applied in this chapter is 15+ unless differently stated.

works, even full-time and with average pay, may be at risk of poverty if there are three or more dependants. One implication is that gender and age differences in poverty rates will be biased by the fact that income is measured at the level of the household, and that all household resources are assumed to be shared equally among all household members.

Chart 1 shows that, in general, workers living in households without children face the lowest in-work poverty in EU (just above 6%), in particular in households consisting of two or more adults (around 5%), while more than 10% of workers living alone are in poverty. Having dependent children increases the incidence of poverty among those employed

**Chart 1: In-work poverty rate by type of household for the EU-27, 2009**



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008

to more than 10%, while the risk almost doubles (to 18%) for single parents. As illustrated in Chart 2, these patterns broadly apply to all

Member States, with some variations in the relative situation of specific households, notably single person households.

## 2.3. In-work poverty by labour market attachment

While in-work poverty is significantly influenced by the household's characteristics as shown above, work characteristics also have an impact. Indeed, working at less than a person's full potential – because they are in a temporary or part time job, for example – can lead to poverty as indicated below.

### 2.3.1. In-work poverty is highly dependent on the duration and the type of work contract

Chart 3<sup>(6)</sup> shows that in-work poverty in the EU is highest for people working less than a full year, followed by the people working in temporary contracts or in a part-time job<sup>(7)</sup>.

People working in permanent contracts face much lower risks of poverty than the average person employed (5.1 % against 8.1 %). The best, if not absolute, safeguard against in-work poverty is thus to have a permanent, full-time, job.

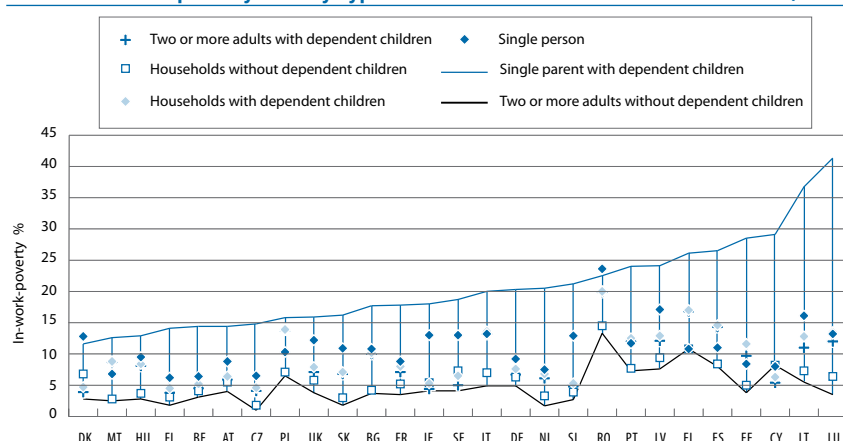
### 2.3.2. Temporary contracts increase the odds of in work poverty

In terms of attachment to the labour market and the development of in-work poverty, it is clear that there is, in general, a major difference between being employed on a temporary contract and being in permanent work as shown in Chart 4.

(6) Accumulation of risks (temporary work and low wage) is mentioned in the Box 3.3 and analyses of various factors are carried out in the econometric model. The combined risk of being temporarily part-time employed is in addition to the above but will not be separately analysed.

(7) RWI study (2011) shows that people on temporary contracts tend to be younger, low-skilled, and women and in addition (all other things being equal) there is a wage penalty in relation to temporary work contracts as compared to permanent contracts.

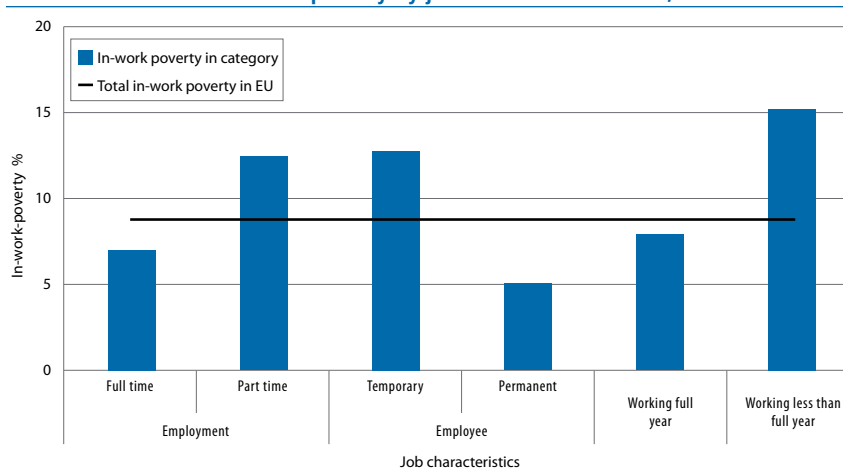
Chart 2: In-work poverty rate by type of household for the EU Member States, 2009



Source: Eurostat EU SILC

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009)

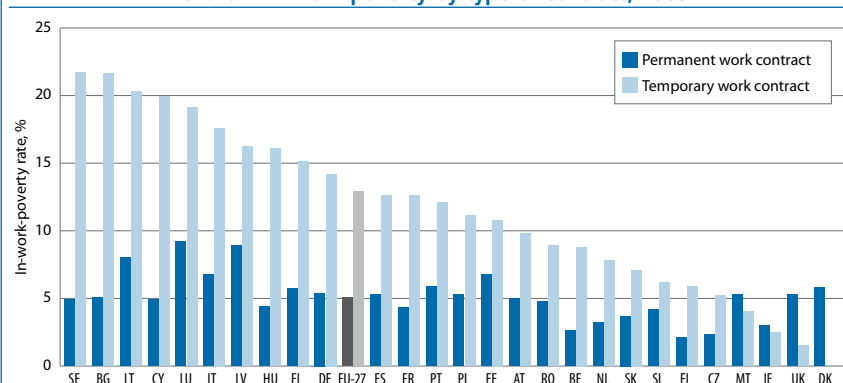
Chart 3: In-work poverty by job characteristics in EU, 2009



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009)

Chart 4: In-work poverty by type of contract, 2009



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009)

All EU countries show higher in-work poverty rates for those on temporary contracts compared with those on permanent ones, with the exception of Ireland, Malta, and the UK where

the share of temporary workers is among the lowest in the EU (in 2010 9.3 % in Ireland, 5.7 % in Malta, and 6.1 % in the UK compared to the 14 % EU average)

Temporary contracts are usually prevalent in certain labour market groups, notably young people, migrants and those with low skills. In so far as temporary contracts represent a stepping stone towards permanent jobs this is not necessarily a source of concern, but this is not always the case (again Ireland and the UK represent a good example, see Section 2.3.5).

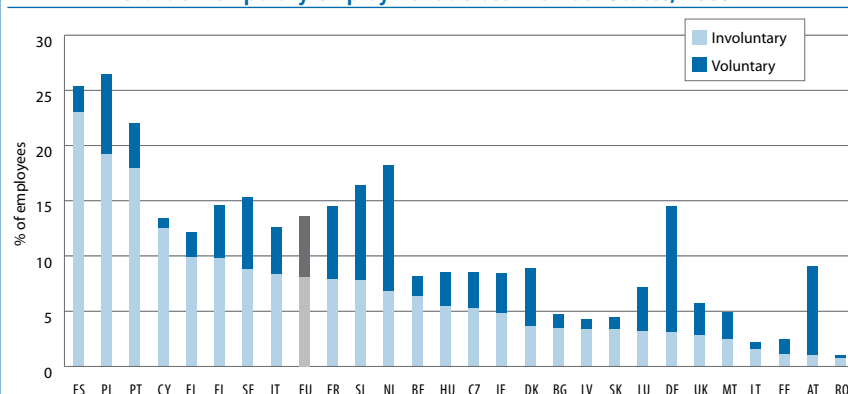
Moreover, temporary contracts are, in most cases, involuntary as seen in Chart 5. In all Member States for which data are available, temporary contracts are generally not chosen by the workers with the exceptions of Denmark and Austria where flexible labour markets allow employers to respond to changes in demand, and their social security systems provide high income security regardless of the type of contract. In general, however, if people are trapped in this kind of employment, the odds of being in in-work poverty increase significantly.

### 2.3.3. Working part-time increases the risk of in-work poverty, especially for the young

Charts 6 and 7 show that for full-time workers the EU in-work poverty rate was 7.1% in 2009, whereas 12.6% of part-time workers declare that they could not find full-time work (hence 'involuntary part-time work'). The Netherlands has the greatest share of part-time jobs in the EU and mostly voluntary with rates of in-work poverty for part-timers not much higher than for full-timers. On the other hand, the difference is more important in many new Member States (Bulgaria, Romania, and Poland) as well as Portugal, where involuntary part time work is often more important despite relatively lower overall shares<sup>(8)</sup>. In 2009, almost every fourth person in part-time employment in the EU indicated that they would like to work more hours, with those proportions reaching over 40% in Latvia, Spain, and Greece (61%, 47%, and 45% respectively).

(8) This might also be due to regulatory gaps of standard full-time open ended contracts and atypical part time contracts.

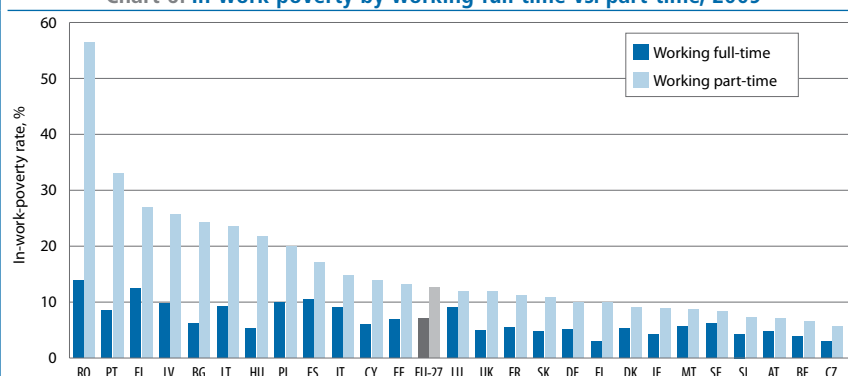
Chart 5: Temporary employment across Member States, 2009<sup>(1)</sup>



Source: Eurostat, EU LFS

(1) Involuntary temporary work is defined as the people who in the LFS say the reason for working on temporary contracts is that they could not find permanent work.

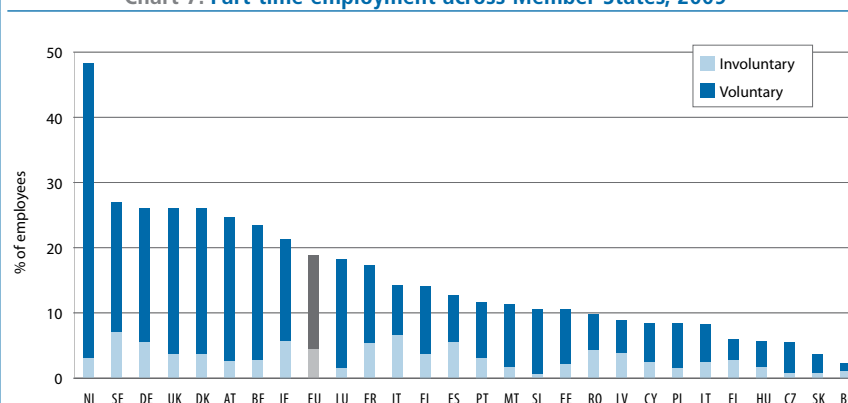
Chart 6: In-work poverty by working full time vs. part-time, 2009



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009)

Chart 7: Part-time employment across Member States, 2009<sup>(1)</sup>



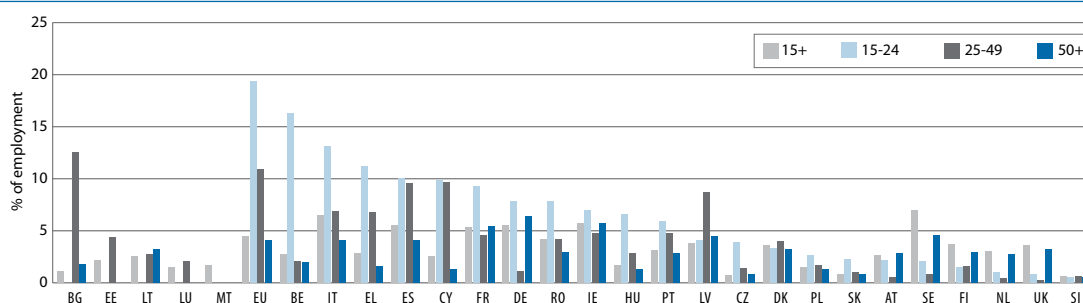
Source: Eurostat, EU LFS.

(1) Involuntary part-time work is defined as the people who in the LFS say the reason for working part-time is that they could not find full-time work, despite wanting to.

Chart 8 and Chart 9 show that part-time work is, to a large extent, involuntary for young people in most countries. This age group and the prime-age group (25-54) would like

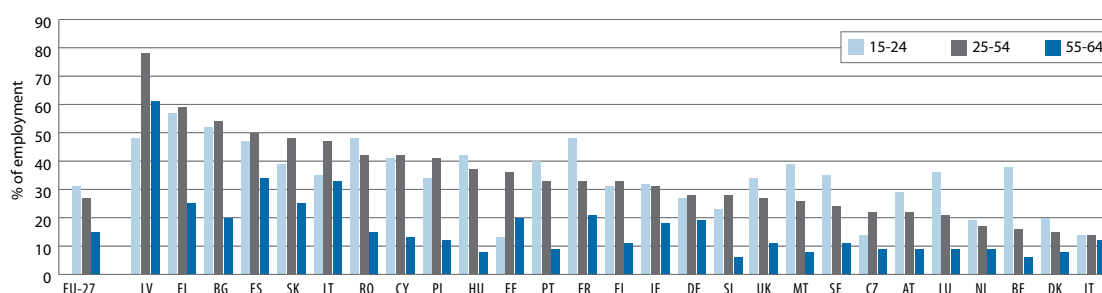
to work more and in some countries this share of the employed is highest for the young people, indicating a substantial underemployment of the young generation.

Chart 8: Involuntary part-time by age group and country, 2009



Source: Eurostat, EU LFS

Chart 9: Employee in part-time wanting to work more by age group and country, 2009



Source: DG EMPL calculations based on EU LFS

### 2.3.4. During the crisis period the permanent full-time contracts saw a steady decline but with a slight increase in the temporary contracts during 2010

The number of workers in the EU with a permanent and full time contract has continued to fall, even when total employment increased. On the one hand, in 2010, 19 Member States saw a fall in the number of permanent jobs (with net gains only in Estonia, Sweden, Belgium, Luxembourg, and Cyprus) while those on temporary contracts or self-employed began to increase from mid 2010.<sup>(9)</sup>

Moreover, the general trend with respect to new temporary contract hirings<sup>(10)</sup> is of concern, with more than 80 % of new work contracts

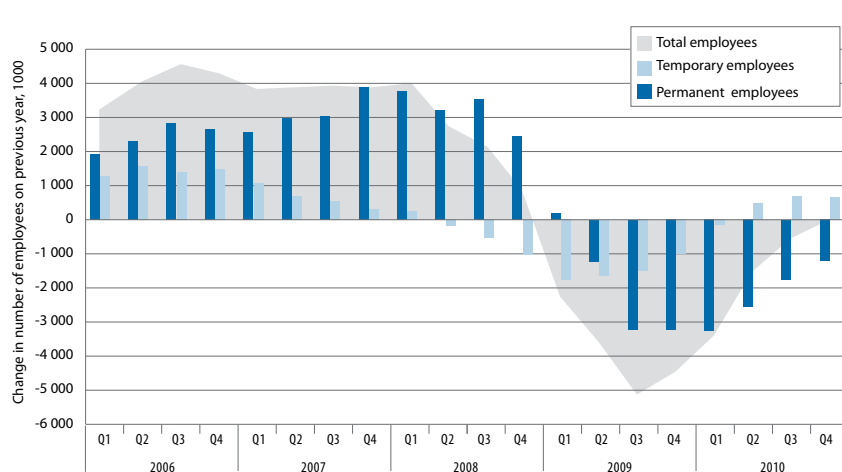
signed in Spain during the last decade being temporary, and around 70 % in Slovenia, Portugal, and Poland.

Even in Sweden, France, Germany, Finland, the Netherlands, and Italy, some 50 % or more of hirings have been temporary and, as Chart 10 shows, if these trends persist, even countries with a relatively low share of temporary workers (such as Italy, Greece, Belgium, or Luxembourg) could soon see their share

increase steeply as permanent workers exit the labour market and are replaced by those on temporary contracts.

If people remain in such contracts, this could undermine progress towards the inclusive growth objective of the Europe 2020 strategy by only moving towards the target of more jobs but not necessarily better, risking that more people become trapped in in-work poverty.

Chart 10: Change in permanent, temporary, and Total employment (15-64) (1 000 employees), 2006-2010

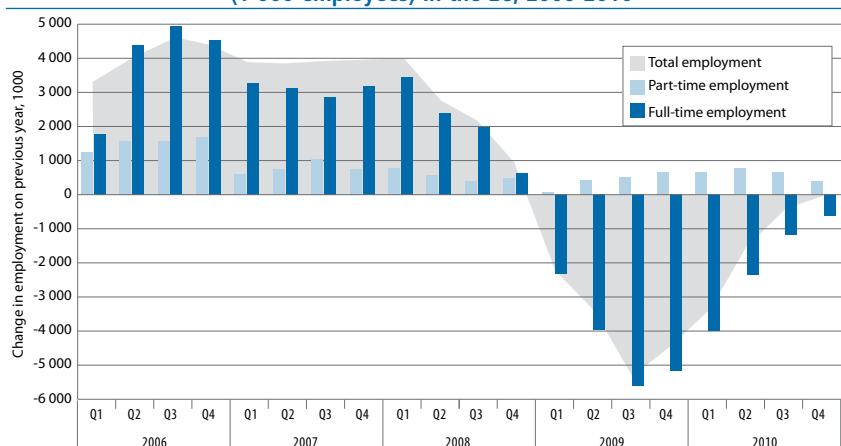


Source: Eurostat, EU LFS

(9) Only in early 2011 there has been a apparent reversal of this trend in the EU (see EU Employment and Social situation review, autumn 2011).

(10) Figures are for the share of temporary workers among employees with short tenure in their current job, i.e. less than one year. Using short tenure employees as a proxy for new recruitments, this measure provides an indication of the extent to which firms use temporary contracts.

**Chart 11: Change in the number of part-time, full-time, and total employment (1 000 employees) in the EU, 2006-2010**



Source: Eurostat, EU LFS

**Table 2: Share of temporary contracts, transition rates to permanent contracts and wage penalty associated with temporary contracts.**

	Share of temporary workers (15-74 y.o.) 2010 (a)	15-24	25-49	50-74	Transition rate from temporary to permanent contracts (b)	Wage-penalty adjusted (c)
EU-27	14.0	42.2	12.1	7.2	34.6 <sup>(1)</sup>	-14.4 <sup>(2)</sup>
AT	9.3	37	5.3	2.8	59.9	-8.4
BE	8.1	30.4	7.1	3.3	45.4	-3.3 <sup>*)</sup>
BG	4.5	10.2	4.0	4.4	76.7	-3.9 <sup>*)</sup>
CY	13.5	20.4	15.1	6.0	32.0	insignif.
CZ	8.9	22.5	6.4	10.8	42.5	-13.7
DE	14.7	57.2	10.7	5.0	36.1	-21.4
DK	8.6	21.6	7.1	3.9		insignif.
EE	3.7	:	3.2	:	79.7	insignif.
ES	24.9	58.6	25.4	11.8	33.2	-13.3
FI	15.5	43.0	14.1	8.0	21.8	-8.9
FR	15.1	55.2	11.8	7.9	17.0	insignif.
EL	12.4	30.4	12.3	7.4	31.9	12.5
HU	9.7	24.9	9.3	6.9	65.2	-9.4
IE	9.3	30.4	7.1	6.0	57.7	insignif.
IT	12.8	46.7	11.9	6.3	36.3	-12.3
LT	2.4	7.5	2.0	2.0	60.9	insignif.
LU	7.1	36.5	6.0	3.0	49.5	-7.6
LV	6.8	12.7	6.1	6.4	71.0	insignif.
MT	5.7	14.8	3.9	:		insignif.
NL	18.5	48.3	14.3	8.1	27.6	-11.6
PL	27.3	64.6	24.8	18.9	33.9	-27.8
PT	23.0	55.6	22.8	11.0	24.6	-13
RO	1.1	3.9	1.0	0.7	62.2	insignif.
SE	15.8	57.1	11.9	7.5	65.2	n.a.
SI	17.3	69.6	13.6	7.8	64.1	-15.7
SK	5.8	17.1	4.7	5.3	45.1	-11.5
UK	6.1	13.7	4.8	5.1	62.3	-10.3

(1) EUSILC (without DK, MT but including NO)

(2) Without SE

\*) Significant only at more than 1% (but less than 10%)

n.a.: not available

insignif.: not significantly different from 0, i.e. no wage penalty.

Notes:

(a) Source: Eurostat, EU LFS 2010;

(b) Source: RWI, Study on various aspects of labour market performance using micro data from EUSILC: Share of workers changing from temporary into permanent employment within 1 year. Average figures are computed for 2004-2008 (to give more stability and less variability due to the economic cycle);

(c) Source: DG EMPL calculations based on Structure of Earnings Survey (SES) 2006 on the basis of a regression: Logarithm of median hourly wages as a function of a set of categorised variables: gender, occupation (ISCO), education (ISCED), age group, type of contract (permanent, temporary). - the wage penalty corresponds to the multiplier before the dummy indicating temporary employment (as contrast estimate). Note that the regression involves a total of N=8 461 observations, with the country-specific results based on no more than around 300 in most cases. As a reference see Employment in Europe 2010, Chapter 3, p. 133f.

### 2.3.5. Transitions from temporary contracts into permanent contracts are comparatively low

In the previous section, having only temporary and part time employment was identified as a potential source of in-work poverty. It is therefore important to explore whether these kinds of employment serve as a stepping stone to permanent and full-time employment, or if workers are likely to be trapped in such poor employment conditions.

As shown in Chart 5, most temporary contracts are considered as second best, and an in-depth analysis of labour market transitions especially between temporary and permanent can shed light on some of these issues.

Analysis carried out by RWI (2011)<sup>(11)</sup> shows that the chances of moving from a temporary contract to a permanent job are not evenly spread across Member States. Between 2004 and 2008, as Table 2 shows, the share of temporary employees who moved to a permanent contract was less than 30% in France, the Netherlands, and Portugal while it was over 50% in Austria, Bulgaria, Estonia, Hungary, Ireland, Latvia, Slovenia, Sweden, Slovakia, and the UK.

Moreover there seems to be a negative correlation between the share of temporary workers and the transition rates<sup>(12)</sup>. These findings mean that, in the first group of countries (those with lower transition rates), the increased use of temporary contracts has been accompanied by reduced chances of moving from a temporary contract to an open-ended one.

(11) Rheinisch-Westfälisches Institut für Wirtschaftsforschung (2011), "Studies on 'flexicurity' Lot 1: Study on various aspects of labour market performance using micro data from the European Union Statistics on Income and Living Conditions", Final Report, Research Project for the European Commission – DG Employment, social affairs and equal opportunities, Contract No VC/2010/0032.

(12) Correlation coefficient -0.64, significant at 1%.

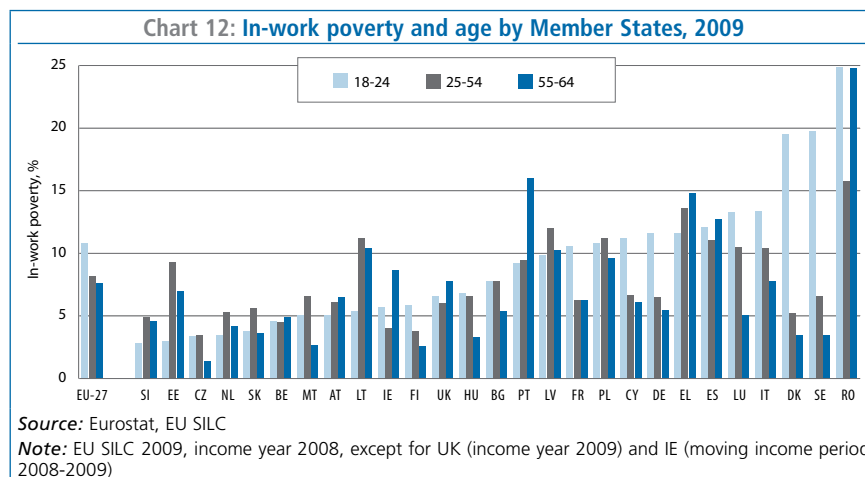


As can also be seen from the table, there are wage penalties related to being employed in temporary jobs. Further analysis carried out by RWI show that, at the average EU level, a person being temporarily employed working full-time receives 17 % less in hourly wage compared to the equivalent person who is permanent and full-time employed. Moreover, part-time employed persons, whether permanent or temporarily employed, receives lower hourly wage (4.7 % and 16.9 % respectively).

In other words, in some Member States segment of the labour market suffer from certain rigidities and, despite increasing labour flows (see European Commission, 2009 and OECD 2010), job opportunities are not equally available to all. This segmentation of the labour market has a number of negative labour market consequences (see European Commission, 2010a) but it is also a factor behind the persistence of in-work poverty.

## 2.4. In-work poverty by individual characteristics

Analysis of the labour market have shown that various groups, like women, young people, older worker, migrants, and the low-skilled more often experience difficulties at the labour market. These groups are more often than others unemployed, discouraged 'workers'<sup>(13)</sup>, or otherwise inactive although the reasons for their inactivity varies between groups.



Additionally, the intensity and quality of employment varies across population groups. Women, young people, migrants, and the low-skilled more often face the risk of underemployment, of working part-time – voluntarily or not – or of being in precarious employment, although the reasons for part-time or temporary employment differ.

Despite the generally poorer position of women on the labour market (evidenced by the gender pay gap and higher incidence of part time and temporary work), the in-work poverty risk for men is higher than for women<sup>(14)</sup> at the EU level and in most countries. This can partly be explained by the family status of employed women in each country. On the one hand, where employed women are predominantly living in couples they are more likely to be second earners, and therefore better protected from the risk of poverty. On the other hand, where single women and lone mothers are obliged to work, even part time in low wage job, they risk higher odds of in-work poverty.

### 2.4.1. With the exception of young people, age is not a strong driver of in-work poverty

In-work poverty also varies across age groups (see also Chapter 2). Viewed across the EU as a whole, it tends to decrease with age as Chart 12 shows, although differences are quite small and the rate of decline is modest. Again household circumstances matter. When young people live on their own and just hold student jobs or 'mini-jobs'<sup>(15)</sup>, in-work poverty rates tend to be higher in these cohorts (such as in Denmark and Sweden). In some countries (notably Italy and Spain) young people tend to stay longer with their parents even when in a proper job (see European Commission, 2010) and therefore face lower poverty rates, which is why comparisons of the risk of poverty by age may be misleading.

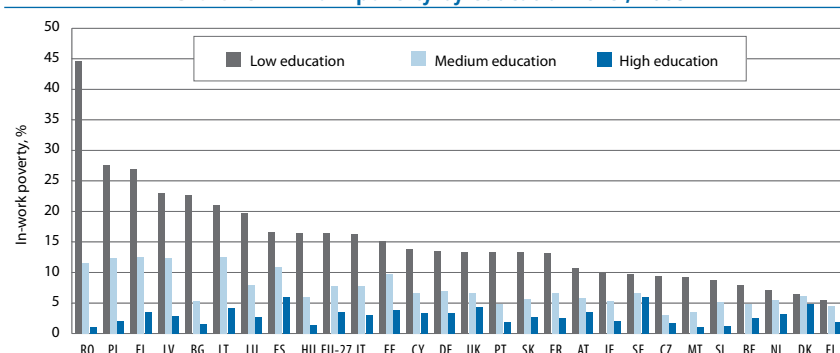
(13) 'Discouraged' are those inactive who want to work but believe that no work is available.

(14) See Chapter 3 on poverty.

(15) "Mini-jobs" refer to a specific category of supported employment aimed at inserting people with low work experience in the labour market. The jobs are characterised either by short duration or working time, or low wage (which at the same time may be exempted from heavy payroll taxes, social contributions and minimum wages). See also Chapter 2.



Chart 13: In-work poverty by education level, 2009



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009)

#### 2.4.2. Education has a significant influence on in-work poverty, especially low education bears substantially higher risk of in-work poverty

Education is an important driver of personal and societal growth. Returns to education are positive, and usually quite important, in all Member States. As a result, as Chart 13 shows, in-work poverty is negatively correlated with education levels for the employed: the higher the level of qualification obtained, the lower the incidence of in-work poverty.

However, the 'returns to education' in terms of the effect of education on poverty reduction is quite different across countries. In Bulgaria, Greece, Poland, and Romania - and to some extent in Latvia, Lithuania, Luxembourg, and Hungary - education markedly reduces the odds of experiencing in-work poverty. Low-skilled people are generally experiencing higher inactivity and unemployment rates than higher skilled. But in countries like Denmark, Sweden, Finland, and the Netherlands, that have safety nets that cover all people regardless of their former attachment to the labour market, low-skilled individuals are at a lesser risk of in-work poverty than in countries with other types of social safety nets. Thereby, the 'return on education' is smaller in these countries: the difference between in-work poverty rates for the low-skilled and those for the higher skilled is small.

People with low educational attainment generally have an employment rate significantly lower than that of high-skilled persons, mainly due to high inactivity, even among the adult population aged 25-64<sup>(16)</sup>. Lack of opportunities to obtain a permanent or full-time job is a significantly greater reason for the high incidence of temporary and part-time work among the low-skilled, which is higher than for other skill groups. Data from the LFS show that 13.5 % of low-skilled employees hold a temporary contract and almost 80 % of them cannot find a permanent job, while one in five low-skilled employees work part-time, including a third who want, but cannot find, a full-time job.

#### 2.5. Factors such as low wage impacts on in-work poverty rates

In-work poverty is dependent, not only on the labour market attachment as analysed earlier, but also on the income of both the household and the individual. In particular, having a low-wage job - even permanent and full-time - can lead to in-work poverty. This is especially the case when weak labour market performances accumulate: indeed, as already implicit in Table 2 (Section

2.3.5), temporary contracts involve a higher percentage of low-wage earners<sup>(17)</sup>. According to the Structure of Earnings Survey (hereinafter "SES"), 30.5 % of temporary workers were low wage earners in the EU in 2006 and these were usually low skilled employees working in services.

Gautié and Schmitt (2010) argue that the intensification of competition that has led businesses to pursue active and urgent cost reductions has translated directly into pressure on the wages and working conditions of the low-paid, because workers in outsourced jobs generally have little firm-specific human capital, are easily replaced if they quit their jobs, and often lack union representation.

Low-wage is also linked to different labour market institutions as Keese et al. (1998) show, with low wage workers tending to do better in countries with strong union movements, especially in countries where governments have the capacity and the willingness to extend collective bargaining agreements beyond the actual participants. In these countries, the coverage of collective bargaining agreements may extend to workers who might otherwise have low-wage, low-quality jobs. On the contrary, where unions are strong but cover only certain categories of workers they might contribute to stronger segmentation.

Another important example is the role of a statutory or informal minimum wage. In France, for instance, the high legal minimum wage is very close to the low-wage threshold, and hence seems to support it, while mini-jobs, as in Germany and Slovenia, tend to increase the proportion of low wage earners. Moreover, unemployment benefits also help combat low wage employment, although this may be because they provide a disincentive effect to take

(16) Analysis by skills is restricted to the population aged 25-64, in order to control for the high incidence of education among 15-24-year-olds.

(17) Low wage earners among full-time employees are defined as those earning less than two-thirds of the national median wage per year. See Eurostat, 2010.

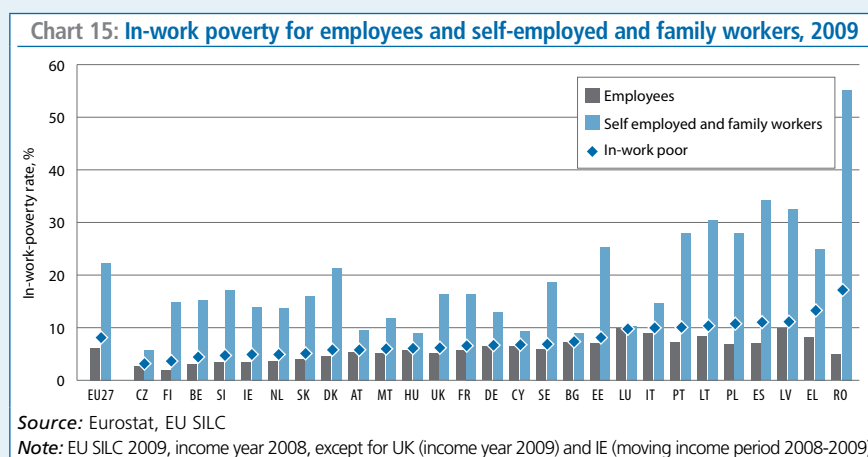
## Box 3.2: In-work poverty for the self-employed

90 % of all firms in the EU are small and medium-sized enterprises (SMEs). Overall, self-employment, including those self employed who themselves employ staff, accounted for nearly 15 % of total employment (more than 1 job in 7) in the EU-27 in 2010, and this is seen as an essential component of EU's economic dynamism.



The economic crisis triggered a loss of more than 6 million jobs between mid-2008 and the last quarter of 2010 in the EU, and self-employment was no exception, with more than 600 000 self-employed losing their job in the same period. Yet the self-employed sector has shown above average resilience, with a lower rate of employment decline than in dependent work. However, it is likely that much of the adjustment to the crisis occurred through reduced earnings rather than reduced employment.

It is not easy to assess the income of the self-employed in practice. All surveys, and the EU SILC is no exception, are subject to considerably higher rates of error issues concerning treatment of negative income and misreporting for the self-employed than for employees. Moreover, data on in-work poverty by most frequent activity status in the previous year is not available before 2009, making it impossible to compare developments during the crisis.



The EU SILC data available for 2009 shows, however, that the in-work poverty rate for self-employed and family workers (22.3 %) is almost four times higher than for employees (6.1 %), and almost three times higher than the overall EU average (8.4 %). Even though the scale of the differences varies between EU Member States, the general picture is that self-employed and family workers have a higher risk of in-work poverty than do employees (with the exception of Luxembourg which appears to show a similar picture for both).

Little difference is noted between the employee in-work poverty and in-work poverty for the self-employed, in Czech, Austria, Hungary, Cyprus, Bulgaria, and Luxembourg. The biggest differences are found in Romania, Spain, Latvia, Lithuania, Portugal, and Poland. In the latter group, the in-work poverty for the self-employed is around 28 % or more, with above 30 % in Lithuania, Latvia, and Spain and some 55 % in Romania.

up low-paid jobs, but only in so far as unemployment benefit rules and allowances allow people to remain unemployed while looking for a better job opportunity.

Low-wage work can represent a first stepping stone towards better paid employment especially among young workers but, as mobility between temporary and permanent contracts in Europe's labour markets is not very high (see Box 3.3), low-wage work can become a persistent feature of a person's working life, whether due to

lack of opportunity for skill development, the inability of the employer to pay more, or simple wage discrimination. Moreover, Grimshaw (2011) finds that some people face a higher risk of low-wage work simply by virtue of their sex, colour of skin, ethnicity, or origin, while others face a higher risk because of where their job is located, for example in the informal sector or agriculture, in a small firm or family-owned firm, in a sector facing intense international competition, or in a firm in a weak position in a competitive global value chain.

Not all low-wage workers live in poverty since many can pool their income with other household members, or benefit from transfers from other family members or the State. But most low-wage workers can also face poor working conditions – a higher risk of the employer not paying for holidays and sick leave, for example, or not providing a pension plan or a permanent employment contract (See Box 3.3).

### Box 3.3: Impact on wages of being in temporary work contracts

As described earlier, the transition between temporary and permanent contracts is relatively slow. Table 3 shows the transitions in earnings deciles by Member State. Between 2004 and 2008 the share of workers moving up by two or more deciles ranged from around 14 % in Portugal to more than 21 % in Luxembourg.

Around 30 % of workers in Latvia, Slovakia, and Romania and 60 % of workers in Cyprus did not move an earning decile at all. Moreover, from 3 % of the workers in Luxembourg to 15 % in Austria experienced a downward transition by two or more deciles.

Table 3: Transitions between earnings deciles by country (in per cent)

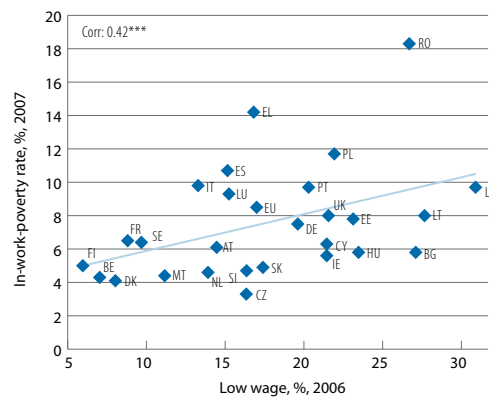
	Downward transitions		Same decile	Upward transitions	
	Two or more deciles	One decile		Two or more deciles	One decile
Austria	14.76	18.7	34.89	16.71	14.95
Belgium	10.88	15.54	41.26	17.85	14.47
Bulgaria	21.6	16.75	23.34	15.27	23.04
Cyprus	3.46	12.61	60.51	17.51	5.9
Czech Republic	11.1	18.49	40.35	16.69	13.37
Germany	6.39	16.52	57.28	14.69	5.12
Denmark	6.45	16.55	52.05	14.97	9.99
Estonia	12.8	24.44	35.39	14.37	13
Spain	12.26	16.1	37.04	17.53	17.07
Finland	3.2	14.11	59.29	16.61	6.78
France	6.26	11.15	55.53	18.88	8.17
Hungary	13.07	19.64	39.64	15.09	12.56
Ireland	5.47	13.7	50.57	18.26	12
Italy	8.15	15.45	48.25	18.69	9.45
Lithuania	10.51	22.48	37.15	16.79	13.07
Luxembourg	3.17	13.06	56.12	21.44	6.2
Latvia	14.6	17.62	32.99	19.42	15.36
Netherlands	2.87	14.43	59.97	17.88	4.85
Norway	7.51	16.2	49.87	16.28	10.14
Poland	8.81	16.93	40.59	18.42	15.25
Portugal	12.68	18.79	42.76	14	11.77
Romania	11.31	25.06	33.04	15.57	15.03
Sweden	7.47	15.34	51.73	16.91	8.55
Slovenia	6.31	15.42	52.95	16.86	8.46
Slovakia	12.56	22.01	33.54	16.32	15.57
United Kingdom	8.6	16.13	48.66	17.76	8.85

Source: Eurostat, EU-SILC 2004-2008, RWI (2011) calculations

The correlation between the incidences of in-work poverty and low wage in the Member States can indicate the extent of the problem across the EU. The data relate to 2007.

Based on a cross-sectional comparison of Member State data, Chart 16 shows a positive co-incidence between rates of low wages and rates of in-work poverty. However, while the correlation is significant, it is not particularly strong (42%), showing that in-work poverty is not just a result of low wages, and further econometric analysis confirms that low earnings are only a part of the problem, with low work intensity at the household level usually proving to be a greater determinant of in-work poverty, as also analysed in European Commission (2009b).

Chart 16: In-work poverty and the incidence of employed on low wage<sup>(1)</sup>, 2007



Source: Eurostat, EUSILC and Structure of Earnings Survey 2006.

Note: EU SILC 2007, income year 2006, except for UK (income year 2007) and IE (moving income period 2006-2007) therefore they are compared with 2006 SES earnings data.

(1) Low wage earners are defined as those earning less than two-thirds of the national median wage per hour. In order to obtain hourly wages, we use the yearly cash employee income and we divide by the number of hours usually worked per week in main job time the numbers of months of work.

#### Box 3.4: The specification of the model

The econometric model is based on a logit regression of the odds of being an in-work poor ( $iwp$ )<sup>(1)</sup> for an individual  $i$ , in household  $h$ , in country  $c$ , in year  $t$  on a low work intensity dummy at the household level ( $lowwork$ )<sup>(2)</sup>, the ratio of children over adult at household level and a dummy for low wage earners at individual level ( $lowwage$ )<sup>(3)</sup> and a set of individual characteristics  $X_i$  (gender, age, education, citizenship, health status, work experience, occupation, firm size, degree of urbanisation, temporary work contract and involuntary part-time).

$$\ln\left(\frac{P(iwp_{ihct} = 1)}{P(iwp_{ihct} = 0)}\right) = \alpha + \beta lowwork_{hct} + \gamma \frac{child}{adult}_{hct} + \delta lowwage_{ict} + X_{ict} + c + t + \varepsilon_{ihct}$$

As shown in the previous sections, these factors appear to play an important role: age and education are usually quite strongly correlated with low income while the type of occupation, the size of the firm, and the work experience can affect the income. The health status and the degree of urbanisation, on the other hand, can affect the job opportunities. However, these factors are also likely to be correlated with the three main mechanisms of in-work poverty. Therefore, in order to rule possible problems of collinearity, the model needs to be run both with and without controls<sup>(4)</sup>.

The regression also has time fixed effects ( $t$ ) to take into account yearly common developments such as the economic cycle, and at the EU level, the regression is estimated using also country fixed effects ( $c$ ) to rule out time-invariant country specificities. In the case of binary outcomes, i.e. outcomes that only take two values (0, 1) as for poverty, the Logit Model (or the Probit model) is the first choice (Wooldridge, 2002) in order to take into account the non linearity<sup>(5)</sup>. Unfortunately the coefficients of Logit (or Probit) estimation are not directly interpretable and, therefore, we compute and show in the table the odd ratios which allow us to indicate that, when there is a one-unit increase in an independent variable, the odds of being a working poor increase by  $x$  unit change.

The model was run both at the EU level and the MS level using the EU-SILC data (see Box 1 in Chapter 3) for the years 2007, 2008, 2009. The results help understand which is the most important channel of in-work poverty in order to be able to formulate policy proposals to fight in-work poverty tailored to country specificities (see Section 5). These findings should be interpreted with caution, however, remembering that they represent correlations and not necessarily causation.

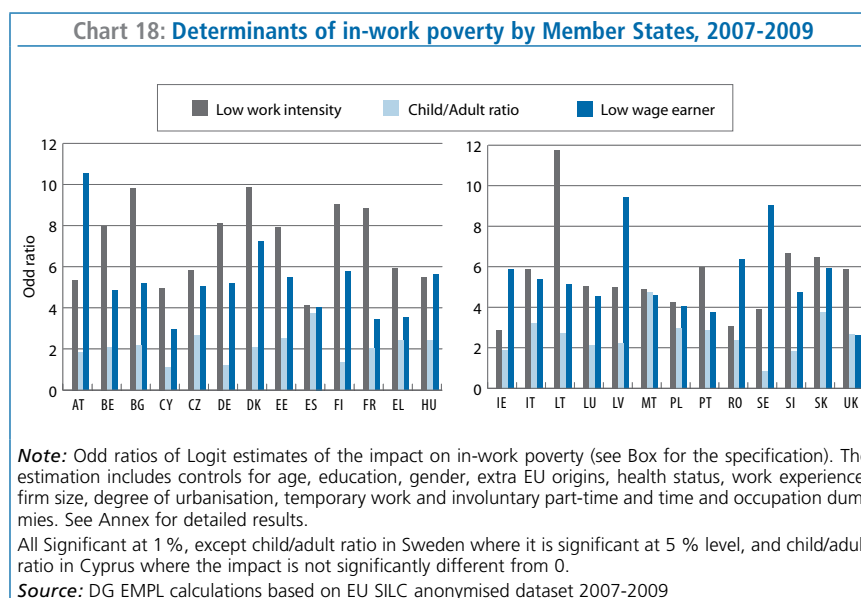
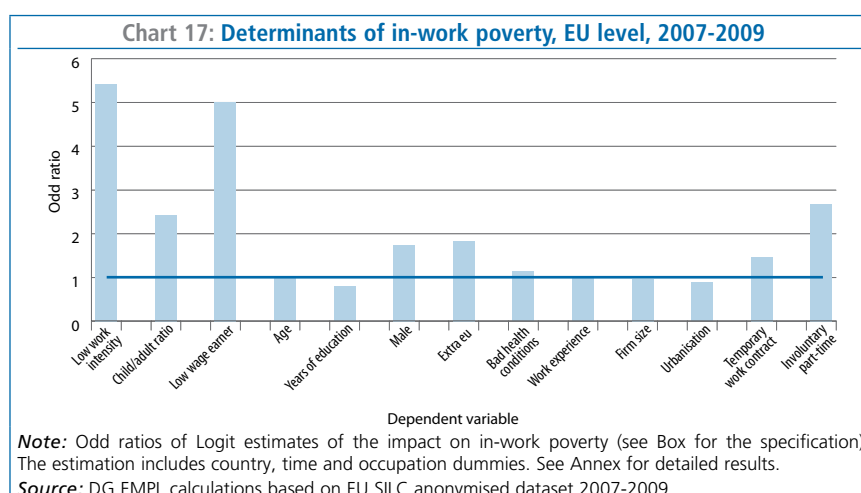
- (1) Here an in-work poor is defined as a person employed at least six months and the hours worked in a main job are not missing and whose equivalised family income is below 60 % of median equivalised income.
- (2) The EU SILC 2009 does not contain yet the revised definition of low work intensity (see Section 3). Therefore, here low work intensity at the household level is defined as a household whose members work less than half of their capacity, e.g. in a couple, one works and the other not.
- (3) See Footnote 1 of Chart 16.
- (4) However, we can test collinearity using the Variance Inflation Factors (VIF) and we found encouraging results at the EU level. A common rule of thumb is that if VIF is above 10 (others refer to 5) then multi-collinearity is high. All our variables show a VIF around 1 and only age and work experience exceed the value of 4. When dropping the variable age, VIF estimates are all around 1 (for further discussion on collinearity, see Greene, 2011).
- (5) Angrist and Pischke (2009) argue that even if the dependent variable is binary the linear probability model can be used.

## 2.6. Econometric analysis of the determinants of in-work poverty

The other sections have identified mechanisms of in-work poverty in the EU which work beyond individual characteristics: namely household composition, low wage work, and work intensity<sup>(18)</sup>. The descriptive statistics provide a first picture of these aspects. However, in order to take into account the interplay of these mechanisms and to examine more formally the characteristics associated with working poverty and how this varies across countries, an econometric analysis was carried out on the determinants of in-work poverty at the individual level, building on Crettaz and Bonoli (2011) and Lohmann (2008).

### 2.6.1. The results

The baseline model (the one without controls) shows that, at the EU level, the three mechanisms all play a significant role in determining in-work poverty. However, at the EU level, a low work intensity and low wage seem to be key determinants of poverty. In particular, as Chart 17 shows, the estimations at the EU level show that working less than half of the potential of a household level (often in the context of part time or temporary employment) has more than 5 times higher risk of being in in-work poverty. Having a low wage is also a significant determinant of in-work poverty: being a low wage earner increases the odd of in-work poverty by 5 times. The impact of low work intensity seems similar to the one of earning a low wage once other control variables and country and time fixed effects are taken into account. These results are supported by research carried out in Marx et al. (2011) where it is equally found that both work intensity and low wage are significant



but that increasing work intensity decreases poverty more than increasing low wages.

The family composition also plays a role in increasing the odds of poverty when the number of children over the adults increases, though relatively less than the two other factors: for instance, a single mother with a single child increases her odds of in-work poverty by roughly 2.4 times when having a second child.

Individual characteristics all play a significant role as expected, but much lower than the three main channels identified: in particular higher education and work experience both reduce the odds of being in-work poor, as do living in a city and working in a relatively larger

firm. Age, taken in isolation, does not seem to have much effect on the odds of in-work poverty<sup>(19)</sup>.

Involuntary part-time increases the risk of in-work poverty by 2.7 times compared to workers who are not in involuntary part-time. Thus involuntary part-time seems to be a decisive factor for the in-work poverty.

(19) Again, there may be a non-negligible multi-collinearity problem: as discussed above, age is the only variable with a Variance Inflation Factor above 4. However, even estimating the regression (1) without the age variable the results do not change much. On the other hand, a bad general health status increases the odds of in-work poverty. There might also be an endogeneity problem for the low-wage variable, which is mainly determined by age, education and work experience. Nevertheless the consistency of the different specifications allows us to draw some preliminary conclusions.

(18) Work intensity is analysed in depth in the following Section 3.

Having a temporary work contract increases the risk of getting into in-work poverty by 1.5 times in comparison with people who have permanent work contracts. These results confirm the findings in the former sections.

Analysing the results at Member State level as in Chart 18 helps demonstrate the different impact, and relative importance, of the three channels across countries in Europe, where differences are quite substantial.

Low work intensity is a key factor of poverty everywhere in Europe, but it is particularly marked in Lithuania where it increases the odds of in-work poverty almost twelve times, and in Bulgaria and Denmark where it increases the odds ten times.

On the contrary, low work intensity seems a relatively less important factor behind in-work poverty in Romania (where the problem is low wages) and Ireland and partly in Sweden and Poland.

On the other hand, family composition is relatively more important in the southern European countries (Italy, Spain, and Malta in particular) but also in Slovenia. In Malta, for example, having one extra child for a single parent with one child already more than quadruples the odds of in-work poverty. On the contrary, family composition seems to count for very little in the Nordic countries (see for instance Sweden, Finland, partly in Denmark, but also Germany) where family allowances and services are stronger. In Sweden and Finland, for instance, an additional child for a single parent with one child has very little impact on the odds of in-work poverty after controlling for other factors.

Low wages seems to be a significant determinant of in-work poverty in all Member States, but appear to be a particularly important channel of in-work poverty in Romania, Austria, and Latvia, but also in countries such as Denmark, Finland, and Sweden where there is no national statutory minimum wage, but wage bargaining systems that cover most of the labour market. In this case, the in-work poor might be those who are not covered by such bargaining arrangements, or who work in industries without sector level minimum wages (and/or they might be young people who are working while studying).

However, Crettaz (2011) and Nolan et al. (2010) show that most low-wage workers are not poor thanks to their household context, which allows them to draw on the income of other household members. Indeed most low paid individuals are not in income related poverty, and fewer than one in six low paid employees are in poor households.

The three mechanisms have the strongest explanatory power in Bulgaria, Latvia, Hungary, Belgium and Luxembourg while they have the lowest explanatory power in the UK, Greece, Portugal and Cyprus<sup>(20)</sup>.

Looking at individual characteristics, it can be noted that age plays only a limited role in all Member States after controlling for work experience and low wages, although the importance of the age factor varies strongly from one country to another. In some countries, the working poor are young (most are in their twenties in Denmark and Sweden) while in other countries the median working poor is in the prime age cohort (25-54), or even aged over 55 (Portugal most notably but also partly in Ireland).

Moreover, in some Member States, working poverty decreases regularly with age, while in others it is higher among middle-age workers than among young workers. Indeed, it is not so much the fact of being young per se that matters: youth is associated with a lower human capital due to the lack of work experience, and, hence, with a higher likelihood to receiving only a low wage. This is consistent with the findings by Mosthaf (2011) which show that low wage jobs may provide stepping stones for the low qualified, but may represent a bad signal in the case of more highly educated workers.

Education, on the other hand, has a significant positive impact on the probability of being out of in-work poverty, but it is still quite limited in size. Being a man generally increases the odds of in-work poverty as has already been shown in the descriptive analysis. This is likely to be due to a composition effect of the workforce (women often enter as second earners and are therefore less likely to be poor even though they accept a low paid, low hours job). Nolan et al. (2010), indeed, shows that among the low paid, income poverty is generally more widespread among men than among women.

Being a foreigner (non EU) increases the probability of being in-work poor but not in several of the new Member States which are mainly emigration countries. Living in a city usually reduces the odds of in-work poverty, but this seems not to be the case in Austria, the Czech Republic, Denmark, France, Italy, and most notably Luxembourg.

(20) Based on the pseudo-R<sup>2</sup>, see Tables in the Annex.



### 3. POVERTY IN THE LIGHT OF HOUSEHOLD WORK INTENSITY

In looking at poverty among workers the previous section identified the main individual explanatory factors, namely their personal and job profile, and the composition of the household to which they belong. Their involvement in the labour market (expressed as being in part-time rather than full-time employment, working for less than a full year as opposed to working a full year, or whether they held temporary or permanent contracts) were found to be the major determinant factors.

Thus, in order to better understand why people can be at risk of poverty despite being employed, a more complex measurement of the 'volume' of their employment is called for. A straightforward way of addressing this is to refer to the amount of time worked, both in terms of (weekly) working hours (accounting for part-time work) and in terms of weeks spent in employment over a year (taking account of any spells of unemployment and intermittent spells of inactivity possibly associated with temporary contracts). In other words, there is a need to address work intensity at the personal level since it is evident that a 10-hour per week seasonal job, for example, cannot be expected to constitute a safeguard against poverty.

However, what matters concerning the poverty of an individual is not only his/her own involvement in the labour market and their own working time, but the employment involvement and pattern of work of all the adults who belong to the same household. Obviously, a full-time earner who lives with non-employed people in the same household will be closer to, or even below, the poverty threshold than one whose income is combined with other earners in the household.

In order to address this issue more precisely, the Indicators' Sub-Group (ISG) of the Social Protection

#### Box 3.5: Definition of work intensity

The household work intensity variable was adopted in 2004 by the ISG of the SPC to be used in the breakdown of the social inclusion secondary indicator 'at-risk-of-poverty rate by work intensity'. It was calculated as a ratio of the sum of all months actually worked in the past year (without any distinction between full-time or part-time) by adults (aged 16-64, excluding dependent inactive youth aged 16-24) to the sum of workable months in the household.

The 'new' household work intensity variable was developed in 2010, in the framework of the Europe 2020 strategy. It is defined as the ratio of the number of all months that adults (aged 18-59, not being a student aged 18-24) worked to the total number of months that could, in theory, have been worked by adults in the same household. For persons who declared having worked part-time, an estimate of the number of months in terms of full time-equivalent is computed on the basis of the number of usually worked hours at the time of the interview.

In both definitions, households composed solely of children, of students aged less than 25, and of people aged 65/60 or more (respectively in the previous and 'new' definition) are entirely excluded from the indicator computation.

This 'new' specification of work intensity thus differs from the 'old' specification with respect to the age bracket considered and on account of the adjustment of part-time work to full-time equivalents, resulting in a more appropriate measurement of work intensity (given that the proportion of part-time workers differs significantly between Member States, as well as between groups on the labour market). Only the new specification is used in this analysis.

#### Box 3.6: Very low work intensity as a measure of social exclusion

Among the primary aims of the 'Europe 2020 strategy' for smart, sustainable, and inclusive growth that was endorsed by the European Council in June 2010 were the objectives of helping the EU recover from the crisis and increasing social cohesion between its citizens.

People living in households with zero, or very low work intensity have been recognised as one of the most challenging groups in terms of social cohesion, due to their dependency on social transfers and their difficulty in accessing basic goods and services. Therefore, 'people living in households with very low work intensity' have become a component of the Europe 2020 headline indicator 'population at risk of poverty or social exclusion', next to the 'at risk of poverty rate after social transfers' and the 'severe material deprivation rate' (see Chapter 2).

People living in households with very low work intensity are defined as people of all ages (from 0-59 years) living in households where the adults (those aged 18-59, but excluding student aged 18-24) worked less than 20 % of their total combined work-time potential during the previous 12 months. These people are identified using the data from the EU Statistics on Income and Living Conditions (EU SILC) and to some extent correspond to the concept of 'people living in jobless households' as defined using the EU Labour Force Survey (EU LFS), where no member is in employment according to the ILO definition. The choice of the 20 % threshold reflects the fact that, below that level of work intensity, household members experience very high rates of poverty and material deprivation.

Committee (SPC) has defined a variable entitled 'work intensity at household level' which basically measures how much of the potentially available annual working time of all the adults in the household is actually spent in employment (see Box 3.5 for definition and further explanations). The group of 'people living in households with very low work intensity' has then become a component of the Europe 2020 headline indicator

'population at risk of poverty and social exclusion' (see Box 3.6 for further explanations) and is used in the following analysis for deepening our understanding of poverty.

Since work intensity can range anywhere from 0 % to 100 %, the total absence of employment is just one extreme case and this section – while focusing on in-work poverty – addresses poverty of all adults, not



only of those employed<sup>(21)</sup>, as in the previous section. In order to simplify the presentation, however, work intensity of households will be categorised as follows: 'very low' [0-20 %] including jobless households; 'low' (20-40 %]; 'medium' (40-60 %]; 'high' (60-80 %]; and 'very high' (80-100 %].

After addressing poverty in relation to the work intensity of the household, the second part of this section differentiates the risk of poverty<sup>(22)</sup> by two types of households – those with, and those without, dependent children. This issue of household composition is crucial: firstly, because the presence of children influences decisions on work intensity, and secondly because the presence of children directly affects the income of all household members and hence their position relative to national poverty thresholds.

### 3.1. Household work intensity as a determinant of individual's poverty

#### 3.1.1. Where do adults concentrate along the household work intensity?

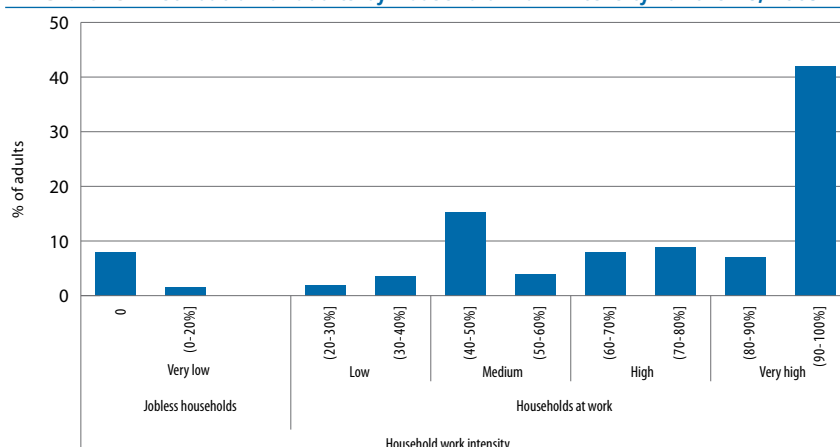
Chart 19 shows the distribution of adults in the EU by work intensity of the household to which they belong.

According to the estimate for 2009, 9.4 % of adults in the 18-59 age group lived in households with very low work intensity up to the level of 20 %, which corresponds to the 26.7 million adults classified as living in very low work intensity households in the framework of the Europe 2020 strategy.

(21) This first part of this section will cover the risk of poverty among all adults aged 18-59 (except students) – employed, unemployed, inactive, because it relates to combined working intensity of the household not of the individual.

(22) This second part of this section will cover the risk of poverty among persons aged 0-59, because it reports on the poverty faces by the type of the household – with or without dependent children.

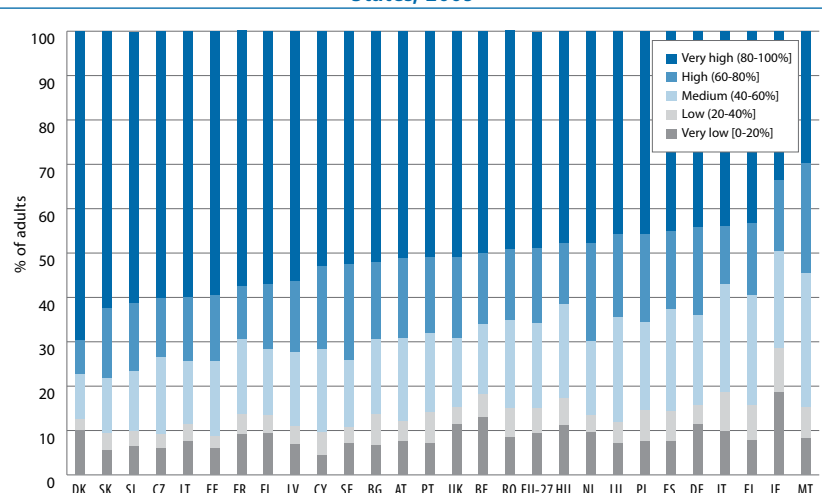
Chart 19: Distribution of adults by household work intensity for the EU, 2009



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008; results for intensity (0-20%) Eurostat estimate

Chart 20: Distribution of adults by household work intensity for the EU Member States, 2009



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009)

As Chart 19 shows, low work intensity - between 20 % and 40 % - is the least frequently found situation, with only 5.6 % of adults in this group. This rare configuration corresponds, for example, to households with only one person employed, and that part-time, or to households with one full-time earner but who was only at work for part of the year.

Belonging to a household with medium work intensity is a second most frequently found situation, with nearly 20 % of adults in such a household, which often contains only part-time workers, just one full-time earner ('one breadwinner

model'), or adults employed for only part of the year. Temporary workers are often found in this group since they may be less likely to work full years since they face a higher risk of moving in and out of periods of unemployment and inactivity than employees with permanent contracts.

A significant share of adults in the EU (17 %) live in households with high work intensity, namely 60-80 %. This intensity corresponds, for example, to households with one full-time earner and some part-time workers (or workers who are at work for only part of the year).

Very high work intensity - between 80% and 100% - is the most frequently found households, with nearly 50% of adults in the EU belonging to that group. However, it should be noted that this group includes a large number of full-time employed persons living alone - in other words, one-person households with 100% work intensity.

Of course, the average results for EU-27 as a whole, as presented in Chart 19, mask substantial variations between Member States, as shown in Chart 50 in an annex which provides equivalent data for each Member State separately. Chart 20 shows the distribution of work intensity in the EU Member States, with countries ordered by the share of adults living in very high work intensity households.

The southern Member States (Greece, Italy, Malta, and Spain), where the traditional family model with a low participation of women remains common, are examples of countries with 25% or more of adults in households with medium work intensity (although this group also includes Luxembourg). In contrast, in Denmark only 10% of adults belong to this group.

In countries with widespread part-time work supporting a high participation of women, namely in Germany, the Netherlands, and Sweden, 20% or more of adults live in a high work intensity household.

In all Member States, however, the majority of adults belong to very high work intensity households. In some of the new Member States (the Baltic States, the Czech Republic, Slovakia, and Slovenia) as well as in Denmark, more than 60% of adults belong to very high work intensity households, which may reflect both the role of wages (low hourly wages encouraging those concerned to work longer hours) in formulating decisions on the extent of labour market participation in the first group, and the high participation of women in the labour market in Denmark.

### 3.1.2. How much does a household need to work to ward off the risk of poverty?

Chart 21 shows the distribution of household work intensity already presented in Chart 19, together with the at-risk-of-poverty rate of adults for each level of work intensity. For orientation, the total at-risk-of-poverty rate for adults (which serves as the reference poverty rate for very low and low intensity households) and the total in-work poverty rate (which differs from the former by excluding persons not in employment) are indicated by horizontal lines.

The evidence suggests that, when household work intensity increases beyond the 20% level, the risk of poverty begins to drop significantly. For the EU as a whole, the poverty rate falls from 50-55% in the 0-20% work intensity household bracket to 40% for adults in the households with a work intensity of 20-30% (which helps to explain the choice of the 20% threshold in defining the concept of very low work intensity). Given the rate of more than 50%, around 14 million (out of 26.7 million) adult persons from very low work intensity households are at risk of poverty in the EU.

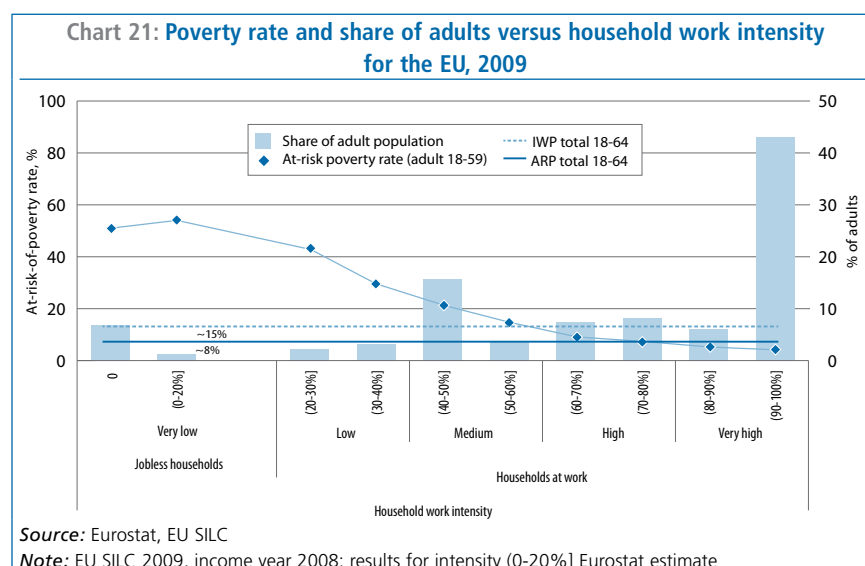
Moving further up the scale of work intensity, the change in the risk of poverty rate is more gradual. However, even though the poverty rate is

reduced nearly three times for adults who belong to medium work intensity households compared to very low intensity ones, 20% of adults in this group still live below the national poverty threshold. Only when work intensity exceeds 50% does the risk of poverty come down to the same level of total 'at risk of poverty rate' for adults, namely 15%. Household work intensity at the level of 60-70% brings adults below the average 'in work poverty rate' of around 8%, and work intensity of 70-80% brings the rate down to around 7.5%.

Very high work intensity in households brings down the risk of poverty among adults very significantly - to 5.4% in the 80-90% work intensity bracket and to 4.5% in households with a work intensity of 90-100%. In other words, higher work intensity clearly, if predictably, indicates a much higher protection of household members against the risk of poverty.

The relationship between work intensity and poverty rates for all EU Member States is given in detail in Chart 50 in the annex.

In some Member States (Denmark, Ireland) medium work intensity (40-60%) is already sufficient to reduce the risk of poverty rate for adults to a level similar to that for the total employed. This may reflect flexible and well functioning labour markets and



well developed institutional support, including good income support for those not employed full-time or during interrupting periods over the year.

On the other hand, in a few countries, a rate of very high work intensity exceeding 80 % is needed in order to reduce steeply the risk of poverty rate below the respective one characteristic for total employed, including in France, Greece, Italy, Latvia, Lithuania, Luxembourg, Romania, Spain, Slovakia, and Slovenia (Chart 50 in the Annex).

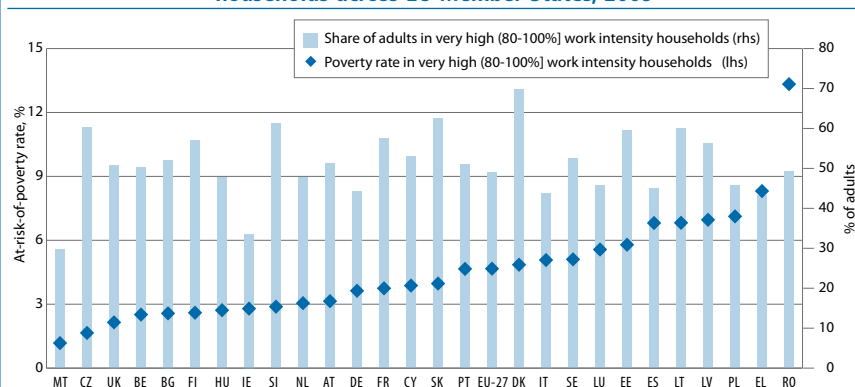
In terms of its impact on poverty, the evidence suggests that low and medium work intensity is insufficient to protect household members against the risk of poverty in the EU. The combined intensity of household members needs to be high or very high if it is to increase the chances of warding off poverty by more than 90 %. In terms of policy, this suggests that increasing the labour market participation of the adults belonging to households with work intensity below 60 % is particularly important in the fight to reduce poverty. Policies that can be mobilised to that end are reviewed in the last section of this chapter.

### 3.1.3. What if all household members work as much as they can?

A high combined work intensity of household members brings the risk of poverty among adults to below 10 %, while very high household work intensity ensures that the risk of poverty among adults drops to 5 % from the 20 % estimated for adults belonging to the households with medium work intensity (the 40-50 % bracket) (Chart 21).

However, poverty linked to very high work intensity does vary across Member States. Notably, 13 % of adults from households with very high work intensity live at risk of poverty in Romania, and this share is also high in Greece (8.0 %), Latvia, Lithuania, Poland, and

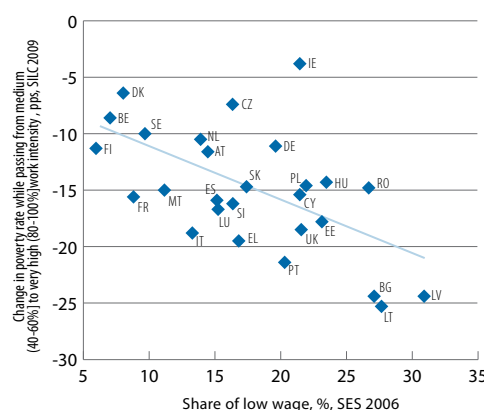
**Chart 22: Poverty rate and share of adults living in very high work intensity households across EU Member States, 2009**



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009)

**Chart 23: Impact of low wage on change in poverty rate while passing from medium to very high work intensity of household across EU Member States**



Source: Eurostat, EU SILC and Structure of Earnings Survey

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009)

Spain (around 7 %). This leads to the question of the quality of full-time work, including the issue of low wage/earning jobs, or the situation of full-time workers on temporary contracts who face higher risks of transitions to unemployment and inactivity.

On the other hand, the risk of poverty for adults living in very high work intensity households is the lowest in the Czech Republic, Malta, and the UK (less than 2.5 %) (Chart 22).

Wages, which are generally the most important component of income (including for in-work poor, as it is shown in the last section), might still be too low to fight poverty. Therefore, policies that provide adequate income support to the employed, such as minimum wages, as well as supplementary income from social security and tax

systems (see the last section) play a role in fighting in-work poverty.

Chart 23 shows that in countries with a high incidence of low wages<sup>(23)</sup> (Bulgaria, Latvia, and Lithuania) households reduce their risk of poverty significantly only while moving from a medium to a very high level of work intensity, or work full time.

At the EU level, while the 15 percentage point reduction (of nearly 80 %) in the poverty risk compared to medium work intensity is very significant, it still leaves 6.5 million adults at risk of poverty despite the very high work intensity of the household members.

(23) Low wage earners among full-time employees are defined as those earning less than two-thirds of the national median wage per year. The previous section discussed the issue of low wages in more details.

## 3.2. Impact of presence of children in the household on individual's poverty

The further analysis focuses on the impact of the household composition on household work intensity, which results from the participation of adult household members in employment and from the presence of children, and (through that) on the poverty risk. It is expanded to the population aged 0-59<sup>(24)</sup>, and addresses the issue of poverty of people in this age bracket with respect to their type of household: with or without dependent children, and conditional on work intensity.

The presence of the children in the household impacts the risk of poverty in two ways. First, it affects decisions about participation in the labour market including about part-time work of household members, especially women, and thus influences the work intensity level. Secondly, since households with children are larger, the total income is distributed among more persons, reducing the equalised income of all members.

### 3.2.1. To what extent does presence of children determine the household work intensity?

This section looks at how the household composition (i.e. whether they include children) impacts on work intensity and, indirectly, on poverty.

Chart 24 shows the distribution of people by household work intensity (24) This part will cover the risk of poverty among persons aged 0-59, because it reports on the poverty faces by the type of the household – with or without dependent children as already discussed in Chart 19, but with the additional distinction of households with and without depend-

ent children. Two distinct patterns emerge. Households with dependent children are present comparably more often in the medium and high work intensity group, while households without dependent children are more often found in both very low and very high work intensity households.

On this basis it seems that belonging to a household with dependent children (or simply having children) is an important factor limiting joblessness of at least of one parent, with the share of people in very low work intensity households dropping to 7% where dependent children are present, while the proportion is higher, at 13%, in households without children.

Moreover, people with children are more often present in medium and high work intensity households, with a share of more than 40% as against 30% for those without children. This work intensity is typical if there is only one breadwinner and/or the other members do not have a job, work part-time, or are not in employment for some time of the year, often because of care duties.

At the same time, the absence of dependent children does allow all household members to work full-time (with shares in very high work inten-

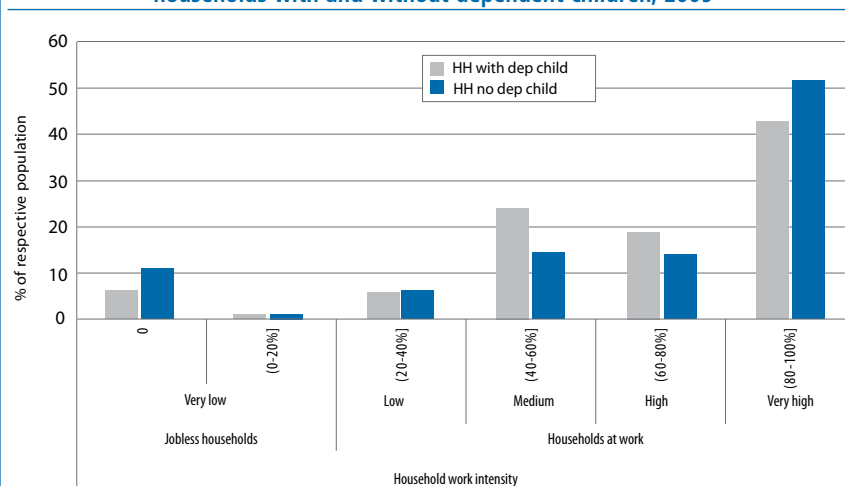
sity of 53% without children against 45% with children) and, in any case, very high work intensity involves the most significant share of population for both types of household.

Chart 51 in the Annex gives details for each Member State.

Some different patterns emerge across Member States. In most Member States medium work intensity is relatively more common among households with dependent children, while very high work intensity is relatively more widespread among households without dependent children. This pattern is most prominent in Austria, Germany, Luxembourg, the Netherlands, and the UK, where part-time work is most common.

In contrast, in several Member States very high work intensity is relatively more common among households with dependent children, while medium work intensity is not less common among the household without dependent children. This is the situation for some of the new Member States, but also for Denmark and Portugal, reflecting the high participation rates of parents in the labour market (arguably for somewhat different reasons – low wages in one case, gender equality in the other).

Chart 24: Distribution of population by household work intensity for the EU, for households with and without dependent children, 2009



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008; results for intensity (0-20%) Eurostat estimate

(24) This part will cover the risk of poverty among persons aged 0-59, because it reports on the poverty faces by the type of the household – with or without dependent children.

Overall, the presence of children provokes different decisions about involvement in work and, in consequence, shapes the work intensity of the household level. Hence the income from employment (wages) and the level of work intensity of households influences the total household income and ultimately the relative poverty.

### 3.2.2. What is the impact of presence of children on the poverty rate along the work intensity?

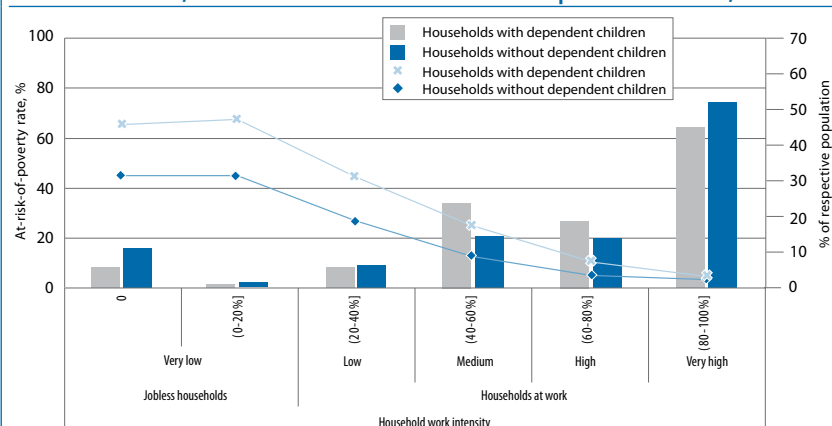
The following part looks at the extent to which having children impacts directly on the risk of poverty in the EU and in the Member States.

The most direct impact of the presence of children on household poverty reflects the need to share the total income among more household members, which diminishes the equivalised income. In the EU as a whole, the overall poverty rate is nearly 18% for people living in households with dependent children (affecting 45 million people), and 15% for people living in households without dependent children (affecting 35 million).

In Chart 25 the impact of having children on the risk of poverty can be seen by the gap between the risk of poverty of households, with and without children. The gap varies along the work intensity scale, and different poverty rates are faced by members of households with and without dependent children, for each level of work intensity. At the EU level, the gap is widest for very low work intensity households, but reduces to a negligible size at very high work intensity.

The at-risk-of-poverty rate for people in very low work intensity households is nearly 70% for households with dependent children, and around 45% for households without - a sizeable gap of 25 percentage points. The risk falls to, respectively, just

**Chart 25: Poverty rate and share of population versus household work intensity for the EU, for households with and without dependent children, 2009**



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008; results for intensity (0-20%) Eurostat estimate

around 25% and 15% for medium (40-50%) work intensity households - as predicted - due to the impact of income from employment, and the gap narrows to 10 percentage points.

Subsequently, with increasing combined working time, the difference drops in the EU and in most of the Member States, and largely disappears at very high intensity. At work intensity in the 80-100% bracket, the risk of poverty rate falls to 4% and 6% for people living in households without and with children respectively - a gap of 2 percentage points.

This evidence of a narrowing gap suggests the potential benefits of policies aimed at moving people to higher work intensity, although, since the gap still persists at medium intensity (at EU level), policies to provide income support could also contribute. Therefore, it may be important to target specific family policies at low intensity households through active inclusion or policies to remove obstacles to employment and through the provision of services, like childcare.

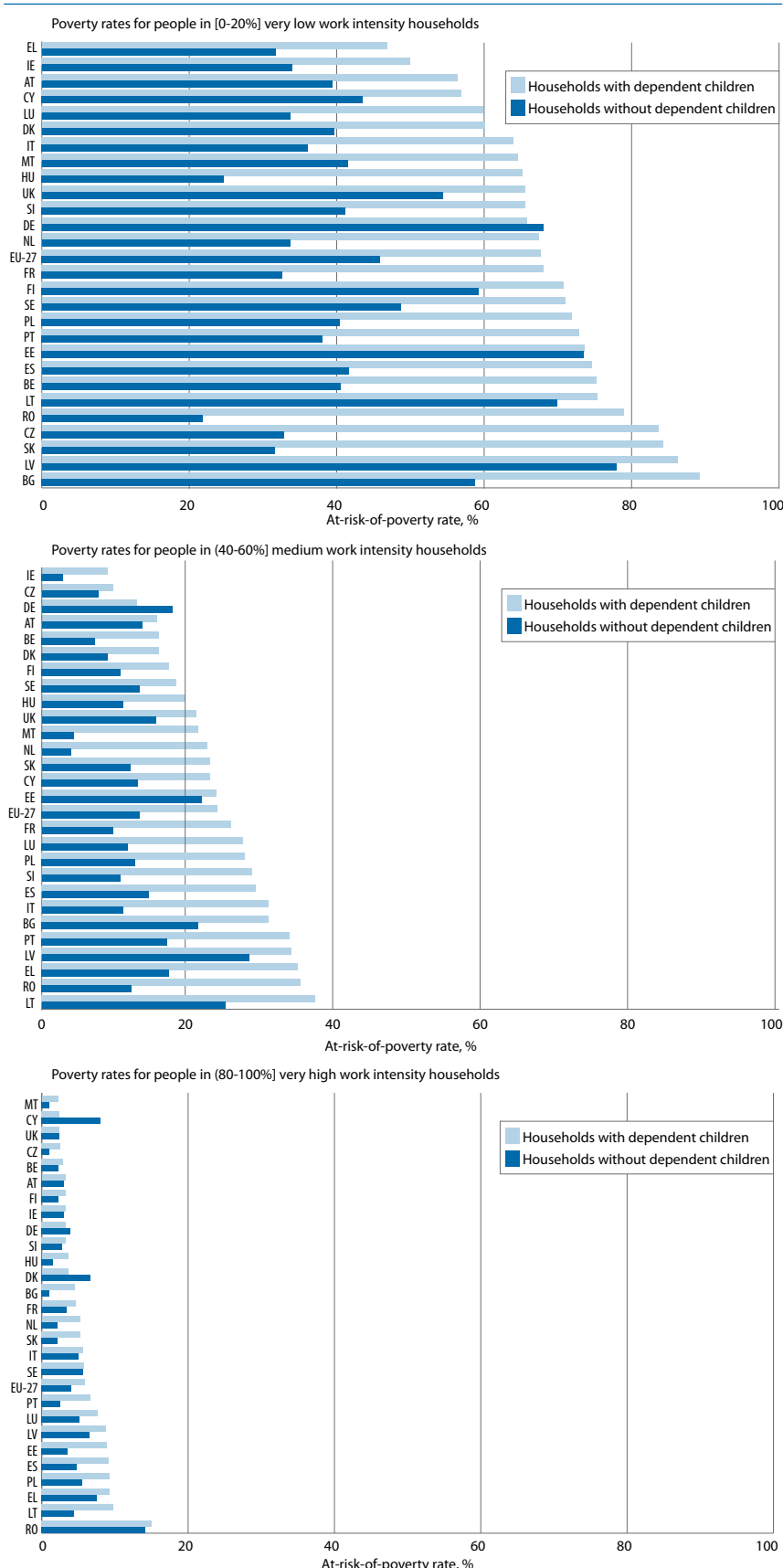
The relationship between work intensity and poverty rates for all EU Member States is given in detail in Chart 51 in the annex, pointing to the differences across Member States. Chart 26 summarises this information.

In some Member States the difference in the risk of poverty for people in households with and without dependent children is very striking at very low work intensity, namely in Belgium, the Czech Republic, Hungary, Slovakia, and Romania. On the other hand, in some countries, namely the Baltic States of Estonia, Latvia, and Lithuania, Germany, and the UK, the difference between the two groups at very low work intensity is rather small.

The gap in the risk of poverty for people in households with and without dependent children already starts to narrow significantly at medium intensity (40-60%) in some other Member States, including the Czech Republic, Denmark, Austria, Hungary, Ireland, and Sweden. It results from the fact that in these Member States the policies supporting families appear to be strong, providing appropriate compensation for the cost of raising children. On the other hand, differences remain significant in France and Romania, and are also high in Greece, Italy, Malta, the Netherlands, Poland, and Slovenia.

At very high work intensity, the presence of children in the household does not increase significantly the risk of poverty in most Member States, with the exception of Bulgaria, Estonia, Lithuania, Poland, Portugal, and Spain. This may be



**Chart 26: Poverty rates by type of households and household work intensity across EU Member States, 2009**

Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009)

explained by the weakness of child benefits for the employed in these countries, as well as wage levels that are insufficient to remove the risk of poverty from families.

The different pictures in Chart 51 in the annex should be read as follows. In Denmark, for example, people with children tend to live more often in very high work intensity households than do people without dependent children. A different situation exists in Germany where families tend to form medium intensity households. In both Denmark and Germany, however, the poverty lines lie close to each other, which indicate the presence of good family support at each level of work intensity.

On the contrary, in Spain or Italy - as in Germany - medium work intensity is more common among families. In both cases, though, the poverty rate gap is greatest at the lower end of the work intensity scale and converges only at the very high work intensity end, further underlining the point that wages are an important factor influencing household income and shaping the risk of poverty.

In some Member States, a narrow gap between the poverty risk faced by households with children and those without, at all intensity levels (the poverty curves lie close to each other) reflects the effectiveness of policies to support families in some Member States, either through the provision of adequate income support linked to having children (Austria, Germany), or by encouraging higher labour market participation through the support provided by access to services, notably childcare (Denmark, Hungary).

Implementing such policies in other Member States could help reduce the population living in poverty in households with or without dependent children, especially in those where the gap is evident at medium work intensity.

## 4. POLICY RESPONSES

The analyses presented in the previous part of the chapter have revealed three factors that can lead to in-work poverty: inadequate hourly/monthly earnings; low work intensity; and the household structure.

In most countries, preventing and tackling in-work poverty has not been seen as a specific objective of labour market and social policies. Nevertheless, many Member States have put in place a range of instruments in the framework of their labour market policies and tax and social protection systems that effectively contribute to reducing in-work poverty with, for example, policies on minimum wages and systems

of social and fiscal benefits having a direct impact on net disposable income. Furthermore, policies aimed at increasing labour market participation, such as vocational training, life-long learning, employment-subsidised schemes, etc., all have an indirect impact by promoting mobility and increasing the employability of people at risk. Depending on the extent to which these policies are well-designed and targeted, they can be very efficient in reaching the groups of people most likely to be affected by in-work poverty.

This part of the chapter reviews the policy instruments used by Member States to address in-work poverty. They are grouped into three categories:

- policies that contribute to ensuring adequate income (e.g. minimum wages, social benefits, and fiscal benefits)
- policies encouraging the labour market participation of groups most affected by in-work poverty
- policies that provide access to appropriate enabling and support services.

### 4.1. Policies for ensuring adequate earnings

Policies that aim to ensure an adequate level of earnings include a combination of instruments such as minimum wages, social and fiscal benefits, and wage subsidies. These are reviewed below, grouped under three sub-headings.

#### 4.1.1. Minimum wages and collective bargaining structure

Minimum wages play an important role in limiting the incidence of low pay by providing a wage floor for income from employment, whether set by law or by collective agreements. Twenty Member States have a national statutory minimum wage set by governments, in many cases after consultation with the social partners and a number of other Member States (Austria, Denmark, Finland, Germany, Italy, and Sweden), have minimum pay rates regulated through collective agreements with sector, occupation, branch, or regions-specific wage floors<sup>(25)</sup>.

Minimum wages have long been a focus of academic research and policy debate and they are seen to provide gains for certain population groups by ensuring a wage floor. The effectiveness of minimum wages in supporting

#### Box 3.7: Is tackling in-work poverty a specific aim of national labour market and social policies? A few examples:

Belgian experts<sup>(1)</sup> comment that "in-work poverty has not been the subject of explicit policy intervention in recent years (since 2008). Nonetheless, we found a number of measures in the federal and regional employment plans, as well as in the federal poverty relief plan, that could directly or indirectly influence the incidence of in-work poverty. These are measures on income protection, job stability, activation policies, and training in order to promote mobility."

The Danish experts note that "there are no policies that directly address the issue of in-work poverty in Denmark. However, there are policies that indirectly affect the issue. For instance, policies and legislations regarding social benefits, taxation, health, and family, help to avoid in-work poverty, although none of these policies are originally initiated as a counteraction towards this specific issue. These policies focus on the basis of income, irrespective of an individual's labour market status."

The Finnish experts note that "poverty is seldom discussed in Finnish policies in relation to work". However, they go on to point out that "the policy tools for fighting poverty in general and poverty among those active on the labour market have been many". In France, the Active Solidarity Income (Revenu de Solidarité Active, RSA) has clear components that address in-work poverty.

On the other hand, in some countries (e.g. Luxembourg, Ireland, Portugal, Bulgaria, and Romania) specific policy attention has been paid to in-work poverty, with trade unions providing explicit proposals on how to reduce the number of working poor in some cases<sup>(2)</sup>. In Germany, for example, the *Second report on poverty and wealth of the federal government* (2. *Armuts- und Reichtumsbericht der Bundesregierung*), published in 2005, identified the high unemployment rate as the real challenge for policies aiming to combat poverty, with unemployment being concentrated in specific groups, such as the low-skilled and older workers. Thus in formulating its aims in the *Second report on poverty and wealth* the government announced that the envisaged reform would, in particular, help avoid the so-called "careers in poverty" (Armutskarrieren). In Bulgaria the working poor became a policy priority of the government in 2005, when the issue was included in planning, strategy, and other documents related to poverty and social inclusion.

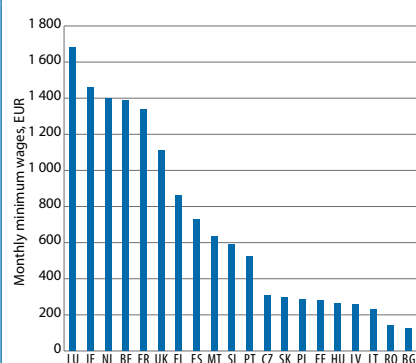
(1) This box is based on the EU Network of Independent Experts (2010), p. 39-40 and corresponding country reports. The synthesis and country reports are found on the following link: <http://www.peer-review-social-inclusion.eu/network-of-independent-experts/2010/second-semester-2010>.

(2) A review is provided in Eurofound (2010), p. 14-20 and EU Network of Independent Experts (2010), p. 39-41.

(25) On collective bargaining structure, see European Commission (2011).



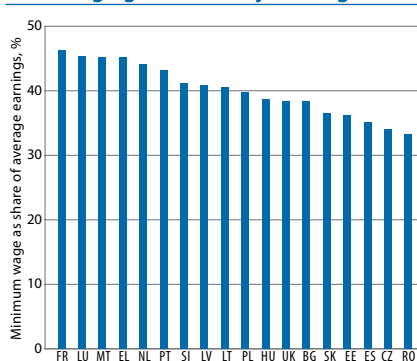
Chart 27: Monthly minimum wages, 2009



Source: Eurostat, Minimum wage statistics (earn\_mw\_cur)

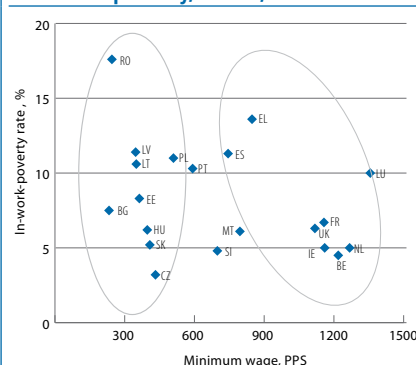
(1) Minimum wages as proportion of the mean value of average gross monthly earnings (Nace Rev.2, B-S). Data for France is for 2008 and data for Greece is 45.2 following Eurostat (2011a), Minimum wage statistics, Figure 3. Data for Cyprus is missing. Countries with no statutory minimum wage not included.

Chart 28: Minimum wages as proportion of average gross monthly earnings, 2009



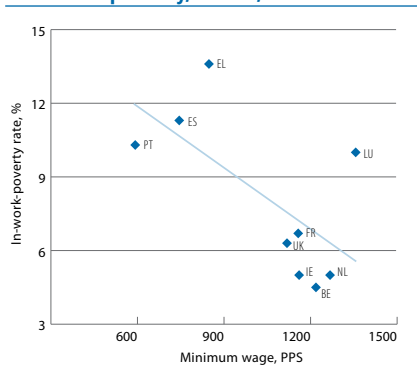
Source: Eurostat, Minimum wage statistics (earn\_mw\_avgr2)<sup>(1)</sup>

Chart 29: Minimum wage and in-work poverty, EU-27, 2009



Source: Eurostat, Minimum wage statistics and EU SILC

Chart 30: Minimum wage and in-work poverty, EU-15, 2009



Source: Eurostat, Minimum wage statistics and EU SILC

Charts 29 and 30 illustrate the relationship between minimum wages and the in-work poverty rates in EU-27 and EU-15<sup>(27)</sup>.

In the first graph, it is possible to distinguish two clusters of EU Member States, with EU-15 Member States which have statutory minimum wages to the right of the graph, and the cluster of the new Member States to the left. There is a clear negative relationship between the presence of a minimum wage and in-work poverty rate in the EU-15. The countries in the lower right corner (the Netherlands, Belgium, France, the UK, Ireland) are characterised by high minimum wages and low in-work poverty rates, while the three Mediterranean countries, Spain, Portugal, and Greece, which have minimum wage levels significantly lower than the rest of EU-15 countries, exhibit much higher levels of in-work poverty rates<sup>(28)</sup>.

Minimum wages in the new Member States are generally lower and are set at rather similar levels, but the relationship between the minimum wage and the in-work poverty rate varies a great deal. As highlighted in previous sections, differences in household composition and work intensity may explain part of the differences in in-work poverty outcomes. Variations in the availability of other forms of income support for workers (in-work benefits) and

(27) The minimum wage is expressed in purchasing power standard, monthly rate. Figures for both in-work poverty rates and minimum wages refer to 2009. Those six countries to which no statutory minimum wage applies are not included (Sweden, Finland, Austria, Italy, Germany, Denmark). The in-work poverty rate is for employed people, aged 18-64 years of age.

(28) Luxembourg is an outlier because of sectoral peculiarities. In particular, the strong financial sector, which has been the country's growth engine since 1980s and represents almost 30 % of total value added, contributes to very high median and average wages with the share of people with income below the 60 % of the median threshold being considerably higher than in other countries. The minimum wage, the highest in the EU (€1758), is just enough to cover the poverty threshold (see Chart 31).

adequate earnings varies significantly across Member States and depends on various factors such as the level, coverage, differentiation, indexation, and so on, of the arrangements. Their effect may, in some cases, be complemented by wage support systems (wage subsidies) where employers receive support for the share of wage paid to an employee above a certain threshold.

According to Eurostat data, there are significant variations in the level of minimum wages in the EU-27. Charts 27 and 28 present the statutory minimum wages in absolute value, and as a proportion of the mean value of the average gross monthly earnings, in the EU Member States which have a statutory minimum wage.

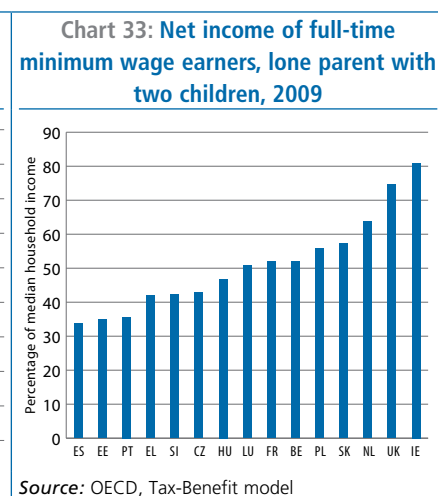
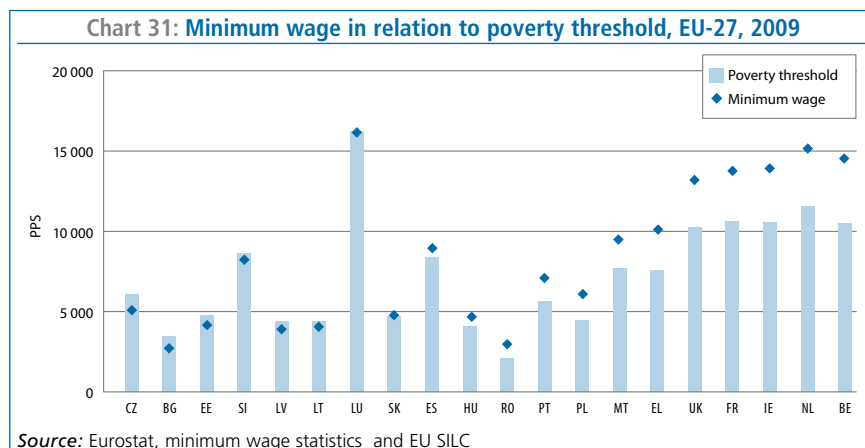
In 2009, the monthly minimum wages varied from €123 in Bulgaria to almost €1700 in Luxembourg<sup>(26)</sup> while the highest values for the minimum wage (as a percentage of average gross monthly earnings) were reported for France, followed by Luxembourg, Malta, and Greece. In these four countries the minimum wage is above 45% of gross monthly earnings. At the lower end of the scale are the Czech Republic and Romania with minimum wages below 35% of average gross monthly earnings.

(26) When adjusted for differences in purchasing power, the disparities between the Member States are reduced from a range of one to fourteen (in EUR) to a range of one to six in purchasing power standard (PPS). At the opposite ends of the scale are again Luxembourg (slightly below 1400 PPS per month) and Bulgaria and Romania (around 245 PPS). Eurostat (2011a).

their families (housing and family benefits) may also contribute to the explanation (see below). In addition, minimum wages in the new Member States tend to be set below the national poverty threshold, and hence do not provide enough income to pull a significant number of people out of in-work poverty. Chart 31 illustrates this point by comparing the level of the minimum wage to the national poverty threshold in the EU-27, with the countries ranked according to the difference between the two variables<sup>(29)</sup>. To the left we find the new Member States (Czech Republic, Bulgaria, Estonia, Slovenia, Lithuania, Latvia, Slovakia) and to the right the EU-15 Member States (the UK, France, Ireland, the Netherlands, Belgium).

Charts 32 and 33, based on the OECD tax-benefit model, give a picture of the net income of full-time minimum wage earners as percentage of the equivalised median income for two household types: a single person, and a lone parent with two children.

As can be seen from the charts, even if account is taken of social transfers received by the households depending on minimum wages, the average net income in a number of countries remains under 60% of the equivalised median income<sup>(30)</sup>: Slovenia, Estonia, Slovakia, Hungary, Czech Republic, Luxembourg, Poland, and Spain for single-person households, and additionally, in Portugal, Greece, France, and Belgium for lone-parent households.



(1) Source: OECD Tax-Benefit model. Net incomes are gross earnings plus cash benefits minus income taxes and own social security contributions. The assumptions underlying calculations of net income: only cash incomes are considered; benefits in consideration include any social assistance and family and housing benefits the household is eligible to receive. Childcare costs, housing costs or any other forms of "committed expenditure" are not deducted when computing the net incomes. Furthermore only benefits payable to able-bodied working age people are included. As such, among the benefits which are excluded are old-age benefits, survivor benefits, disability benefits, occupational injury benefits, sickness benefits, and childcare benefits. With respect to taxation only personal income tax and employees' social security contributions are included. Incomes are determined in a particular month but presented on an annualized basis, i.e. multiplied by 12, assuming unchanged income throughout the year. More details on the methodology are available in OECD (2007), Annex 1. Net incomes refer to 2009; median income is that of the total population for the latest year available (generally 2008) in the OECD database on Income Distribution and Poverty ([www.oecd.org/els/social/inequality](http://www.oecd.org/els/social/inequality)) updated to 2009 values using the CPI. Data on income distribution is missing for Latvia, Lithuania, Malta, and Romania.

The effectiveness of minimum wages in providing a wage floor also depends on the collective bargaining level, structure and coverage, and on the laws relating to the extension of collective agreements. The incidence of low pay is generally higher in countries where bargaining takes place predominantly at a company level, for example in Bulgaria, Estonia, Lithuania, and Latvia, which are also the countries with the lowest level of bargaining coverage<sup>(31)</sup>. Some

examples illustrate the importance of the collective bargaining structure. These include Cyprus, where the minimum wages exceed 50% of the national median wage, but only covers 8 specific occupations<sup>(32)</sup>, with a similar situation in Malta. In Austria, on the other hand, high minimum pay rates are coupled to an almost universal coverage rate (98-99%) that is valid for almost all employees<sup>(33)</sup>.

(29) Data is on an annual basis, expressed in purchasing power standard.

(30) An assumption made by the OECD in the calculation of the median income is the "square root of household size" equivalence scale, i.e. the population median is used for the single person households and the population median multiplied by the square root of three is used for households of lone parents with two children.

(31) European Commission (2011), Sections 1.4.3, 4.2, and Chart 1.9 on bargaining coverage rates, 2007-2009.

(32) Pashardes (2010).

(33) European Commission (2011), Chart 1.9, Section 1.4.1

Another important factor is the extent of the differentiation of the national minimum wage or minimum pay rates according to the level of worker's qualifications and work experience, age, occupation, and region, with countries commonly applying lower minimum wage rates to younger, low-qualified, or less experienced workers.

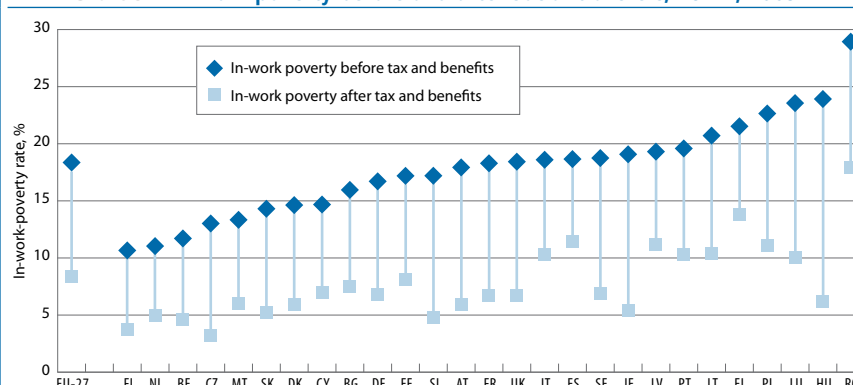
In conclusion, the minimum wage provides a wage floor for the income from employment of some workers, but it cannot offer adequate support to a large number of working poor who, for example, cannot find a full-time job, and who are often outside the minimum wage/pay coverage scope. For this reason, in seeking to address poverty concerns, policies such as minimum wages are often coupled with other policy instruments such as in-work benefit schemes or activation policies.

#### 4.1.2. Social and fiscal benefits for low-income workers

In contrast to minimum wages, benefits granted through the tax and social security system can make it easier to target specific groups of people and family types. Chart 34 illustrates the impact of social transfers on in-work poverty.

It can be seen from the chart that countries like Finland, the Netherlands, and Belgium have low levels of in-work poverty both before and after transfers. Thus, it can be argued that, in such countries, the policies are designed so that they manage to achieve a low level of in-work poverty without having to redistribute among people. In other countries, the reduction of in-work poverty is achieved through higher redistribution. For example, social transfers have an important effect in reducing the level of in-work poverty in Hungary (almost 18 pps), in Ireland (14 pps), and in Luxembourg (14 pps). In relative terms, i.e. the percentage change in the in-work poverty

Chart 34: In-work poverty before and after social transfers, EU-27, 2009



Source: Eurostat, EU SILC the following footnote is missing, please add:

(1) EU SILC 2009, income year 2008, except for UK (income year 2009) and Ireland (moving income period 2008-2009). Both values for in-work poverty rate, before and after transfers, are based on disposable household income. Old-age and survivor's benefits are part of disposable income. In order to obtain the disposable income before social transfers, the disposable income after social transfers is reduced by the amount of total transfers (at individual and household level) except for old-age and survivor's benefits (s. Eurostat 2011b, description of EU SILC target variables HY020 and HY022). The reasoning is that pensions are considered as primary income since their role is not only to redistribute across income groups but also, and primarily, to ensure an income of individuals over the life cycle. The indicator of in-work poverty rate before transfers should be interpreted with caution for a number of reasons. First, it takes no account of transfers in kind (e.g. housing, health, education), tax credits, and tax allowances, which affect the disposable income. Second, there is an implicit assumption in its calculation that people do not change their consumption pattern and labour market decisions in the presence and absence of social transfers. Third, social assistance for the older people is not classified in the same way across countries; therefore, the impact of such schemes is unequally reflected in the calculation.

rate before and after transfers, the impact of social transfers on reducing in-work poverty rate is the highest in Czech Republic (75 %), Hungary (74 %), and Slovenia (72 %), and the lowest in Greece (36 %), Romania (38 %) and Spain (39 %).

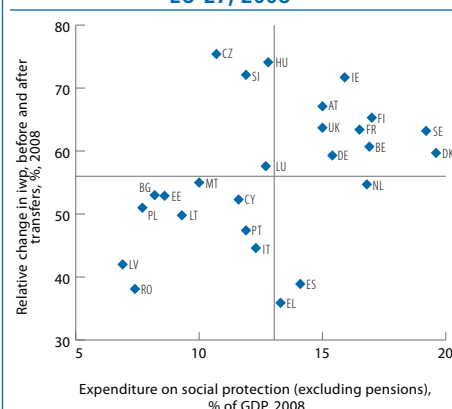
Chart 35 maps out the expenditure on social protection and the relative change in in-work poverty rate before and after social transfers, with the point of intersection being the EU average. While social security and tax systems have to deal with many other issues, most countries have made use of them in order to put in place measures that directly or indirectly affect in-work poverty.

The general picture is that countries that spend more on social protection manage to achieve a greater reduction in poverty (e.g. the countries in the right upper corner, which are old Member States, have the highest spending on social protection and a strong impact in terms of poverty reduction). Data on the level of spending, does not, however, tell the full story. In particular, a well

performing labour market combined with a social security system that provides well designed benefits to facilitate labour market participation (e.g. childcare), reduces disincentives and provides targeted support to the in-work poor that is efficient in fighting in-work poverty.

As the chart illustrates, countries like Hungary, Czech Republic, and Slovenia spend similar amounts on social

Chart 35: Effectiveness of social transfers, EU-27, 2008<sup>(1)</sup>



Source: Eurostat, EU SILC and ESSPROS

(1) EU SILC 2008, income year 2007, except for UK (income year 2008) and Ireland (moving income period 2007-2008).

protection as do Spain and Greece, but they manage to achieve a much higher reduction in in-work poverty rate. In effect Hungary, Czech Republic, and Slovenia have more redistributive welfare systems with significant net transfers to low-income groups as well as incentives for second earners, helping them to be among the countries with the lowest levels of inequality in the EU<sup>(34)</sup>.

The table below presents the evidence on the relationship between the various types of social benefits and in-work poverty rates, based on correlation coefficients<sup>(35)</sup>. As can be seen from the table, all types of benefits are associated with lower in-work poverty rates, and are significant at the 5 % level. The correlation between the monthly minimum wage and the in-work poverty rate is also negative (-0.28)<sup>(36)</sup>.

**Table 4: In-work poverty and social benefits by function, EU-27, 2008**

	<b>iwp 2008</b>
Sickness Benefits	-0.39**
Old-age Benefits	-0.27**
Family Benefits	-0.35**
Unemployment Benefits	-0.19**
Disability Benefits	-0.26**
Housing Benefits	-0.23**
Social exclusion Benefits	-0.30**

Source: Eurostat, EU SILC and ESSPROS <sup>(1)</sup>

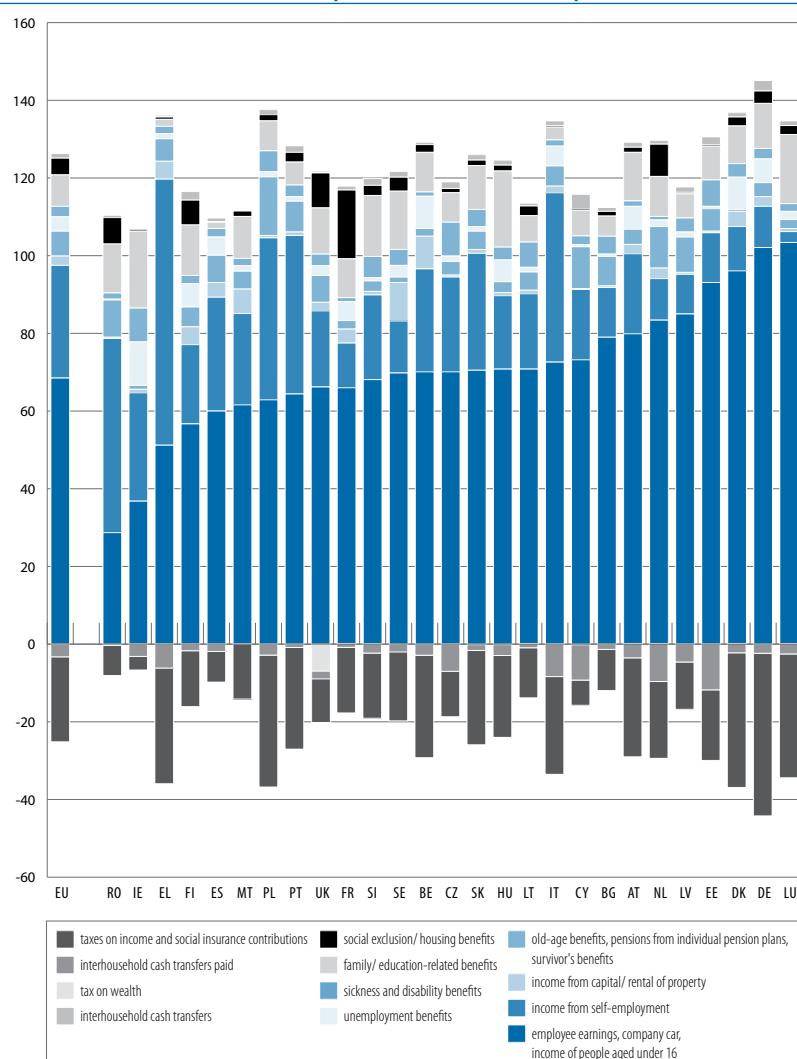
- (1) EU SILC 2008, income year 2007, except for UK (income year 2008) and Ireland (moving income period 2007-2008). The figures give the Pearson's estimated correlation coefficients. They are all significant at the 5 % significance level. Data for social benefits represents percentage of GDP. Old-age pensions and anticipatory old-age pensions are excluded from old-age benefits.

(34) Eurostat (2011c): Statistics in focus.

(35) Social benefits are expressed as percentage of GDP. Old-age pensions and anticipatory pensions are excluded. See European Commission (2011a), p. 27-28. The results are similar if we express social benefits in euro per inhabitant or purchasing power standard per inhabitant.

(36) In this calculation only the countries with a statutory minimum wage are included. Minimum wages are expressed in purchasing power standard. Expressing minimum wages in euro does not much change the results; the correlation coefficient is minus 0.25.

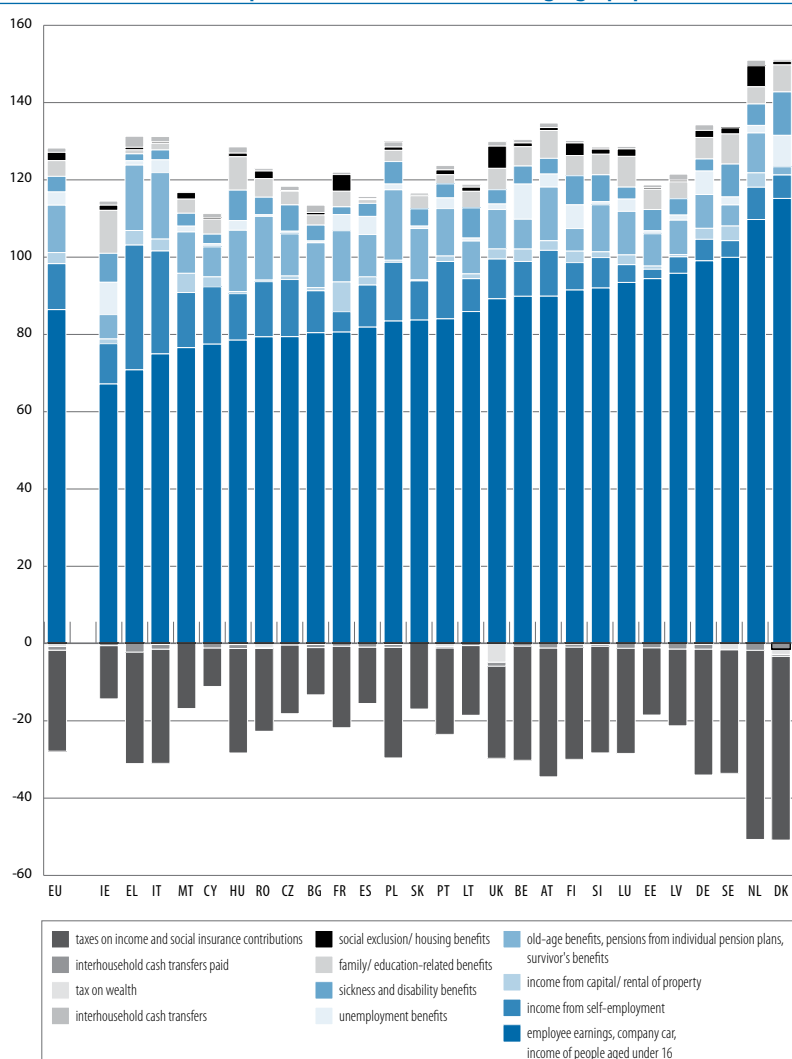
**Chart 36: Income composition of the in-work poor, 2009 <sup>(1)</sup>**



Source: DG EMPL calculations based on EU SILC

- (1) EU SILC 2009, income year 2008, except for UK (income year 2009) and Ireland (moving income period 2008-2009). The two charts present the percentage of each component in the net household income for the whole population (Chart 37) and of that of the in-work poor (Chart 36). For both samples only the aged 18-64 are considered. Outlier observations with shares for employee earnings, income from self-employment, capital, or rental of property in the total household gross income above 2 000 % are dropped. The shares of income are computed at the household level. Each member of the household has the same income composition. In computing the country average for the chart for the in-work poor, we consider only those individuals who are both employed (using the SILC employment status indicator) and in a poor household (using the EU SILC poverty indicator). Income from employment includes wages and salaries, and other types of supplementary payments paid by employers (bonuses, thirteenth month payment, productivity-based payments, etc.). Benefits that are received both at individual and household levels are included; except for housing income, benefits are restricted to cash benefits. Unemployment benefits are included as an income component because some of the in-work poor receive these benefits because they do not work full-time, full-year. Old-age benefits include old-age and partial retirement pensions, care allowances, etc. Taxes on income include taxes on individual and family level and social security contributions paid by employees or the self-employed. For detailed description of income components, see Eurostat (2011b).

Chart 37: Income composition of the whole working age population, 2009



Source: DG EMPL calculations based on EU SILC

A number of countries have recently focused on 'in-work' (or 'employment-conditional') benefits, which, in effect, represent features of both social benefit support for low-income workers at risk of in-work poverty, and an incentive payment designed to increase the financial return from work<sup>(37)</sup>. As such, they accentuate the gap between incomes in and out of work. An illustrative example is

the French Active Solidarity Income (Revenu de Solidarité Active, RSA), which consists of two components, basic RSA and in-work RSA. The first is similar to a minimum income, and the second is income support for people who work<sup>(38)</sup>. Other examples include 'prime pour l'emploi' in France, the UK 'Working tax credit', and the Finnish 'earned income allowance', etc.<sup>(39)</sup>

(37) Low-income earners and second earners are facing lower participation rates, partly related to the failure to make work attractive for these groups. Given the regressive pattern of social security contributions, labour costs are relatively higher at the lower end of the wage scale, which particularly harms labour demand for and the employability of the people in these groups. On the labour supply side, second earners often face the problem of inactivity or unemployment trap. More details in European Commission (2011e), chapter 5.

(38) A person who does not work, for example, receives only the basic RSA; a worker with low earned income received both RSA; and a worker whose income is higher than a threshold receives only the "in-work" RSA. Thus, although this is a general scheme, it has a clear component to address in-work poverty: it covers the whole spectrum from providing incentives to the unemployed to enter into work and a secure income to those in work at various income levels.

(39) Immervoll, H. and M. Pearson (2009).

Charts 36 and 37 present data on the sources of income for the in-work poor and compare them with those for the whole population.

The main source of income for the in-work poor in almost all countries is employment earnings. Nevertheless, self-employment is also important for the in-work poor in some Member States (e.g. Romania, Greece, Poland, and Italy). As shown in Chart 36, in Italy and Poland, for example, the share of income from self-employment is slightly above 40 %. In Greece it reaches almost 70 % and in Romania the corresponding figure is 50 %, which means that in the latter countries self-employment is the primary source of income for the in-work poor. Furthermore, self-employment is relatively more important as a source of income for the in-work than for the population on average: the respective shares of income from self-employment for the whole population are considerably lower (Chart 37). For example, in Greece it is 30 %, Romania – 14 %, and Poland – 16 %.

Furthermore, the share of income from capital and rental of property is lower in the household budget of the in-work poor than for the whole population in most Member States. Some exceptions to this pattern include Greece, Spain, and Finland, where the income from rental of property has a much higher share in the budget of the in-work poor.

Another source of income for the in-work poor is social benefits. Their share in the net household income of the in-work poor is the highest in Ireland, France, and the UK, and lowest in Greece, Spain, Italy, and Bulgaria. Moreover, in the former countries, social benefits are a relatively more important source of income for the in-work poor than for the whole population, while the situation is exactly the reverse in the latter countries. This reflects the fact that in Spain, Greece, Italy, and Bulgaria the social security system is much less redistributive towards the



low-income groups, while in Ireland, France, Hungary, and the UK there are considerable in-work benefits targeted at the in-work poor.

Family and education-related benefits make up the highest share in the net income of the in-work poor, and they are more important as a source of income for the in-work poor than for the whole population in most Member States. As it can be seen from the first chart, their share in the household budget of the in-work poor is the highest in Ireland, Hungary, Luxembourg, and Slovenia, and lowest in Spain, Greece, Italy, and Bulgaria. Indeed, the former countries provide more targeted support in the form of tax credits, allowances, etc. for (working) families, including support for particular family compositions such as lone parents or families exposed to higher risk of poverty. An important component of family support is support for non-parental child-care (in the form of grants, subsidies, tax rebates, etc.) in order to reduce the budget burden of school fees and to increase work incentives for second earners of the lower-income households. Without addressing this issue, too high level of family benefits risks to create work disincentives for second earners. In countries like Spain, Greece, and Italy, the social security system does not provide high enough family support and incentives for second earners.

Old-age benefits, pensions from individual pension plans, and survivor's benefits make up a lower share in the household income of the in-work poor than for the whole population. This is due to the fact that a larger part of these benefits are received by older people who are already outside the labour market and as such are not considered as in-work poor. Nevertheless, as it is seen from Chart 36, in a few countries such as Poland, Romania, Cyprus, and the Netherlands old-age benefits make up a relatively high share also in the net income of the in-work poor. This can be accounted for by higher number of working old people who

experience in-work poverty or by the presence of pensioners in the household. Indeed, in some of these countries complex households with three and more adults are more common.

The relative burden of income taxes and social contributions on the household budget of the in-work poor is in most countries lower than for the whole population. For example, as it can be seen from Chart 37 for the whole population, among the countries with the highest share of taxes are the Netherlands (49%), Denmark (48%), Sweden (32%), and Austria (33%). However, in these countries the taxation burden in the household budget of the in-work poor is considerably lower: the Netherlands (20%), Denmark (35%), Sweden (19%), and Austria (25%). This is achieved through tax rebates, tax credits, reductions in the social security contributions paid by workers, progressive taxation system, etc. Nevertheless, in some Member States such as Germany, Poland, Slovakia, Portugal, Greece, and Estonia, the relative burden of taxes is higher for the in-work poor than for the whole population.

#### **4.1.3. Reducing the tax wedge and social contributions for employers can support job creation for the low skilled and the youth but may reinforce low wage traps**

Reducing the tax wedge on labour costs (e.g. exemptions/reductions in compulsory social contributions borne by employers for low wages, taxes on fringe benefits, etc.) is one way of trying to encourage businesses to hire more people with low qualifications. While such policies favour the creation of lower paid jobs, there is concern that this may increase the risk of a 'low-wage trap' by discouraging employers from implementing 'high-road' policies like training or increasing wages. In this context, increasing wages above a certain amount might involve employers in losing entitlement to exemptions from tax and social contributions.

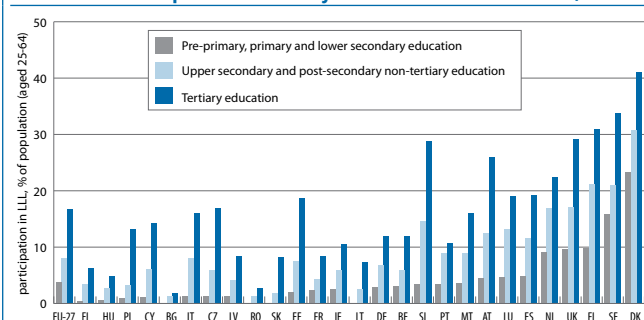
In conclusion, in-work benefits provided by social security and tax systems to workers at risk of poverty are important elements in 'making-work-pay' policies. They are attractive because they redistribute towards low-income groups at the same time as they create additional work incentives for those out of work, thereby addressing the twin problem of in-work poverty and the persistent labour market difficulties faced by the low-skilled. However, in-work benefits can also create disincentives for low wage earners to take up more work or move to higher pay levels, as well as for employers to offer better paying jobs.

## **4.2. Policies for increasing labour market participation**

The previous sections have shown that increasing the employment participation of household members has had a crucial impact on in-work poverty through its effect on family income. Important obstacles to higher labour market participation are low education/skills, precarious employment or involuntary part-time work, financial disincentives, and inadequate access to enabling services such as childcare. These obstacles are reviewed in the following paragraphs together with the policies that Member States have put in place to address them.

### **4.2.1. Low education and low skills**

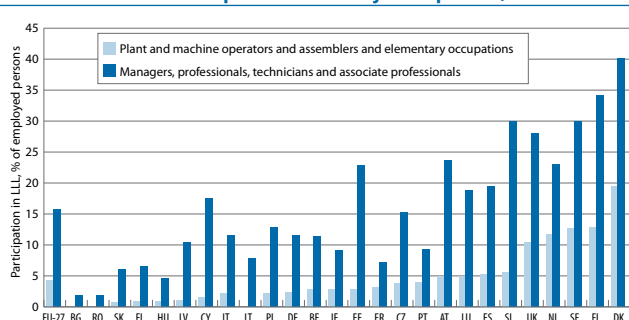
Educational performance, and the closely related skills level, strongly affects individual employment opportunities, poverty, and social exclusion. Chart 13 has shown that people with low educational levels have around a 4 times higher risk of in-work poverty than those with high education, although the proportions vary significantly between Member States. In many countries the low-skilled face much greater difficulty to enter the

Chart 38: Participation in LLL by educational attainment, 2010<sup>(1)</sup>

Source: Eurostat, EU LFS

(1) The chart presents the percentage of population (aged 25-64) engaged in formal or non-formal education and training. Pre-primary, primary and lower secondary education corresponds to levels 0-2 (ISCED 1997), upper secondary and post-secondary non-tertiary education corresponds to levels 3-4, and tertiary education corresponds to levels 5-6. Data for Bulgaria, Lithuania, Romania and Slovak Republic not available for participation in LLL of people with pre-primary, primary and lower secondary education.

(2) The chart presents the percentage of employed people (aged 25-64) engaged in formal or non-formal education and training. Data for Bulgaria, Lithuania, Romania and Malta not available for participation in LLL of plant and machine operators and assemblers and elementary occupations.

Chart 39: Participation in LLL by occupation, 2010<sup>(2)</sup>

Source: Eurostat, EU LFS

labour market, and are often found trapped in low paid or precarious jobs<sup>(40)</sup>. Furthermore, the educational and skills level affects the lifetime earnings and well-being, not only of the individual concerned, but also of his or her dependents, especially children, thus perpetuating the negative impact of low education and low skills.

Beyond efforts to improve access to high-quality education and combat early school leaving, improving access for the low-skilled to life-long learning is also crucial. Eurostat data shows that people with lower levels of education, and the low-skilled generally, have more limited access to lifelong learning. Charts 38 and 39 illustrate this by depicting the participation rate in life-long learning (LLL) by levels of educational attainment and by occupation.

As it can be seen from the charts, people with lower qualifications have significantly lower rates of participation in education and training. The biggest

differences in relative terms between participation rates of tertiary graduates and people with primary to lower secondary education are found in Poland, Cyprus, Greece, Italy and the Czech Republic (more than 10 times higher participation in LLL for tertiary graduates)<sup>(41)</sup>. At the other end of the spectrum are Denmark, Sweden, the Netherlands, and the UK where the differences in participation in LLL are the smallest, ranging between 75 % and 200 %.

Participation in LLL by occupation exhibits a similar trend: those engaged in elementary occupations (mostly low-skilled workers) have a much lower participation rate in LLL than high-skilled workers occupying managerial or other professional positions.

These trends suggest a potential problem of 'training the already trained' despite considerable efforts at EU level to encourage higher participation and equity in education and training<sup>(42)</sup>.

Furthermore, the accumulation of multiple disadvantages among specific groups (people with a migrant background, minority groups, people with disabilities, or other special needs, etc.) calls for specific policy mixes<sup>(43)</sup>. Particular attention has been devoted in recent time on the role and impact of digital skills and competences, and the usage of ICT based services for social inclusion and employment of groups at risk of social exclusion<sup>(44)</sup>.

#### 4.2.2. High incidence of temporary jobs, mini-jobs, involuntary part-time work

As shown in Chart 10 and Chart 11, since mid-2010 there has been an increase in the creation of temporary jobs, intermittent jobs, etc., which has contributed to increased hiring and

(40) The German national experts note: "In Germany, the formal educational attainment is extraordinarily important for the entrance into working life. For this reason, particularly those social groups have big problems on the labour market, which have only low graduations or no training qualifications", Huster, Bourcarde and Schutte (2010), p. 30. For illustration, the in-work poverty rate in Germany for people with pre-primary, primary and lower secondary education (levels 0-2, ISCED 1997) was 15,2% in 2008 against 6,7% for those with an upper-secondary and post-secondary non-tertiary education (levels 3-4), and 4% for those with a tertiary education (levels 5-6). Source Eurostat, EU SILC (ilc\_iw04)

(41) However, as data for participation in LLL of people with pre-primary, primary and lower secondary education are missing for four countries (Bulgaria, Lithuania, Romania and Slovak Republic), these countries have been excluded. Looking at relative differences between participation rates of those with secondary and tertiary education, including those four countries, the MS with the highest differences are only new Member States: Slovak Republic, Poland, Lithuania, Czech Republic, Estonia and Cyprus respectively.

(42) European Commission (2011b) and (2011c), Council recommendations on policies to reduce early school leaving.

(43) Socially vulnerable groups are often forced to leave education much earlier, tend to suffer from weaker family support to continue education, face discrimination within the education system and have more limited access to non-formal learning opportunities outside compulsory schooling. Policies focus on provision of language courses, desegregation policies to improve the social and ethnic mix at schools, support to schools in disadvantaged areas, etc.

(44) See 2011 factsheet of the Joint Research Centre/ Institute for Prospective Technological Studies (IPTS) presenting research results on 'ICT for cultural diversity and socio-economic inclusion' available at [http://ec.europa.eu/dgs/jrc/downloads/jrc\\_20110120\\_eusja\\_ict\\_inclusion\\_factsheet.pdf](http://ec.europa.eu/dgs/jrc/downloads/jrc_20110120_eusja_ict_inclusion_factsheet.pdf).



employment creation. Less clear, however, is the extent to which these jobs are able to offer adequate income and living conditions for the job-holder, or how resilient they are to cyclical variations in employment, as for example during economic downturns. A further issue is the limited employment security given that they are not usually covered by the employment protection legislation and the social security system.

Table 2 has also shown that there is considerable variation between Member States in the transition rates from temporary to permanent contracts. Low transition rates (e.g. Portugal, Spain, France), a high share of involuntary temporary or part-time work, and the existence of a wage penalty for work in temporary employment (e.g. Poland, Germany, Slovenia) point to labour market segmentation where chances to escape in-work poverty are reduced.

Flexicurity policies, as promoted by the EU<sup>(45)</sup>, can play a role in reducing in-work poverty among people with intermittent jobs, on temporary contracts, or involuntarily working part-time. This is true in so far as there is a combination of more flexible labour markets that enable employers to respond more easily to changes in labour demand alongside welfare systems that provide adequate levels of income security, irrespective of the type of contract during periods when the employees concerned are between jobs, involuntarily working fewer hours than they would like, etc.

A high incidence of precarious or intermittent jobs can be closely connected to low education/skills. A much larger share of the low-skilled or low-educated people are trapped in low-paid jobs than are high-skilled workers, and they have fewer opportunities to obtain a permanent or full-time job.

Furthermore, the share of temporary workers among the young is very high in the EU, above 40 %, and above 55 % in some Member States (Germany, Spain, France, Sweden, Poland, Portugal, and Slovenia)<sup>(46)</sup>. Many young qualified people accept temporary contracts as a stepping stone to enter the labour market. The figures on low transitions and high rates of involuntary temporary work suggest, however, that such jobs cannot always be regarded as a stepping stone, but rather can often serve as a way for firms to reduce labour costs and evade employment protection legislation covering permanent jobs<sup>(47)</sup>.

In order to help facilitate the transition from education into work, many countries promote a dual education system that combines study with work experience, complemented by various types of vocational trainings in real working environment, as well as loans and grants that encourage young people to finish their education faster. This is backed, too, by support for job search and subsidised employment schemes, as well as the promotion of entrepreneurship among young people. However, any shift away from the creation of mini-jobs to more sustainable ones has been seriously impeded by the economic downturn.

#### 4.2.3. Financial disincentives

The design of the tax and benefit system may create financial incentives or disincentives to take up work or to work more. An important question is how to design the benefits and taxes so that an individual who wants to increase his or her employment participation does not end up losing out: i.e. ensuring that the increased employment earnings from more work outweigh the foregone income from benefits/tax alleviations associated with a transition to a higher income category.

Furthermore, 'active' income support and measures that stimulate 'self-sufficiency', such as income-support schemes coupled with broadened incentives to participate in training and employment, have an important role to play. For example, the revision of disability and sickness benefits targeted at those who are capable of at least some degree of activation are intended, in part, to promote higher participation<sup>(48)</sup>. Pension system reforms include measures that create incentives for older workers to remain longer in employment (limiting the financial attractiveness of early retirement schemes, introducing enhanced increments for late retirement, and reviewing elements such as ceilings on pensionable earnings and taxes on pensions).

Also important are measures that provide support to families in order to encourage and facilitate the participation of second earners: childcare cost policies to support non-parental child care and make it more affordable for parents on low incomes, rebalancing tax and benefit policies more generally to improve work incentives for second earners or lone parents.

A recent OECD study has shown that, in a number of countries (Bulgaria, Czech Republic, Ireland, Latvia, Lithuania, Malta, and Slovenia), childcare costs create inactivity traps among low-earning households because they reduce net income gains from taking up employment to such an extent that individuals are better off caring for them themselves and obtaining benefits<sup>(49)</sup>. Childcare costs can be a particularly powerful determinant of net income gains in the case of second earners at low wage levels<sup>(50)</sup>. Providing subsidies to

(48) A more detailed analysis of active labour market policies for people with disabilities and other specific needs is available in Eurofound (2010a).

(49) OECD (2011), p. 25. Figures A2.1 and A2.2 present results for separate countries. Results are based on OECD tax-benefit models. Methodology is presented in Annex 1, p. 42.

(50) This result is based on the OECD assumption of the first earner being employed full-time at the average wage.

(46) Table 2.

(47) European Commission (2010a), p. 151.

(45) See European Commission (2007).

Chart 40: Unmet need for medical examination, 2009

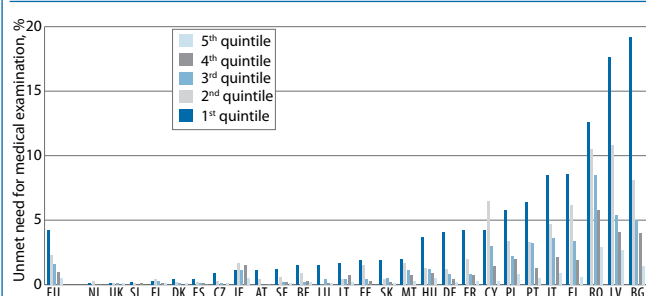
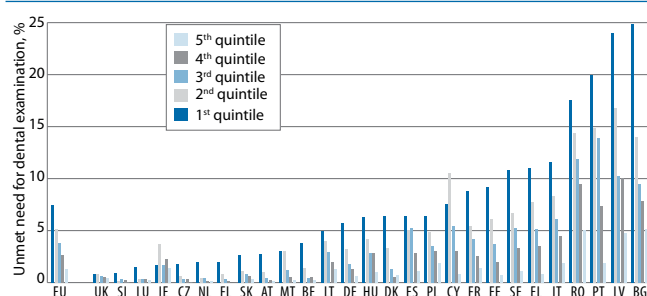
Source: Eurostat, EU SILC<sup>(1)</sup>

Chart 41: Unmet need for dental examination, 2009



Source: Eurostat, EU SILC

(1) The following two charts are based on EU SILC survey data. Data refers to 2009, reasons pointed by respondents for unmet need is "too expensive". Data is missing for unmet need for medical examination for the Netherlands - 1st quintile, Slovenia - 3rd and 5th quintiles, Denmark - 4th quintile, Estonia - 5th quintile. Data for the same indicator is presented for 2008 for FL - 5th quintile, SI, NL, and Luxembourg - 4th quintile. Data on unmet need for dental examination 2009 is missing only for FL - 5th quintile.

reduce the effective cost of childcare provision, and direct more investment in childcare facilities where there is a shortage, can markedly improve work incentives. In some countries (e.g. Bulgaria, Latvia, Slovenia), however, supporting childcare costs is not enough as payoff from employment is very low even without childcare (e.g. due to low wage incidence, high out-of-work benefits, etc.), which means that other policy mixes are needed to increase the incentives for second earners. At the opposite end of the spectrum are Denmark, Hungary, Slovakia, and Estonia where relatively low out-of-work incomes are combined with low cost of childcare (public provision, targeted childcare subsidies, etc.) so that 'work pays' for low-income (lone) parents, even after taking account of childcare costs<sup>(51)</sup>.

The most effective financial incentives are often those that are coupled with flexicurity measures and family-friendly working arrangements intended to allow a better balance between family and working life: voluntary part-time work, job sharing/rotating employment, telework, annualised hours, reduced working hours after parental leave, etc.

#### 4.2.4. Limited access to enabling services

General access to services such as affordable transport, child-care, healthcare, education, and housing can increase the incentives for higher employment participation and reduce the burden on the household budget<sup>(52)</sup>. Countries have implemented various policies to increase the amount of day care available, supporting alternative forms of care (mini-kindergarten, company nurseries/preschools), creating child care facilities at work places, and introducing mandatory pre-school education in order to liberate care takers from care responsibilities and allow them to participate more actively in employment. Childcare services are in some countries integrated with support services like transport to nursery/school at the neighbourhood level.

In particular, charts 40 and 41 show that the percentage of people with unmet needs for medical and dental examination (because they are too expensive) is much higher among the people in the poorer quintiles than in the richer quintiles<sup>(53)</sup>. The highest

percentages of people in the poorest quintile with unmet needs for the both types of examination are to be found in Bulgaria, Latvia, and Romania. The ratio of people with unmet needs for medical examination in the lowest to the richest quintile shows, however, that the highest inequality in terms of access to medical examination is found in Germany, Slovakia, and Luxembourg, and for dental examination in Austria, the Netherlands, and Belgium<sup>(54)</sup>.

Overall, Member States have implemented a number of labour market and social policy measures that directly or indirectly help reduce in-work poverty. These measures are wide ranging and include actions to raise the incomes of the in-work poor by introducing wage floors and providing targeted or more general support through the social security and tax system; job stability and activation policies to promote higher labour participation of various groups at risk of poverty; and last but not least enabling services like transport, education, and care facilities that both increase labour market participation and provide income support. Combining these measures in an integrated way is the main thrust of active inclusion strategies that the European Commission has recommended and promoted (Commission's Recommendations on active inclusion).<sup>(55)</sup>

(51) OECD (2011), p. 25 and Figures A2.1 and A2.2.

(52) Chapter 2, In-kind benefits discussed the effects of government spending on childcare, healthcare, education, and elderly care on income distribution and inequality.

(53) The only exception to this pattern is Cyprus and Ireland, where the percentage of people with unmet healthcare needs in the second quintile is higher than in the first one for both indicators. Data for 2008, however (Cyprus: 4.3 % and 6.4 %, and Ireland: 0.7 % and 2 % for medical and dental care respectively) seem to corroborate the general pattern. Eurostat, EU SILC.

(54) Data should be interpreted with care when comparing across countries due to a problem in the translation of the questionnaire. European Commission (2010c), Table 8a, p. 180.

(55) European Commission (2008).

## 5. COUNTRY ANALYSIS

### 5.1. Germany

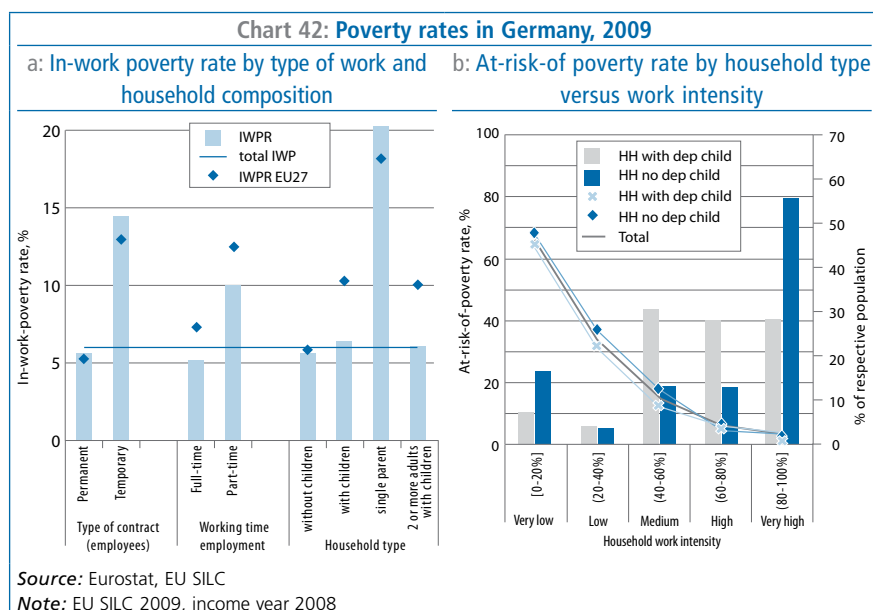
The in-work poverty rate in Germany, at 6.8%, is below the EU average; however, the rate has been on an upward trend and has surged by a significant 2 percentage points from 4.8% in 2005. This may be explained in part by an increase of part-time work and the creation of many mini-jobs<sup>(56)</sup>.

The employment rate of 74.9% for persons aged 20-64 years is one of the highest in the EU-27, with part-time work now being relatively wide-spread in Germany. It accounts for slightly above 25% of total employment and the transition rate from part-time work to full-time is, at 8.1%, the second lowest in the EU, after the Netherlands (7.9%)<sup>(57)</sup>. However, those working part-time voluntarily outnumber those doing so involuntarily by 5 to 1.

Part-time work is most common among women, and it is usually the result of care responsibilities for dependent children. This reflects traditional family patterns (single-breadwinner household type) coupled with a relative shortage of early child care facilities, especially for children of up to 3 years of age. As the second chart shows people who live in households with dependent children are equally spread across medium, high, and very high work intensity (around 25-30% in each interval), while more than 50% of people without children belong to the households that work at full intensity. However, despite such distribution, there is no difference in the poverty levels for households with children and without children at all levels of work intensity. This reflects that the social security targeted income support policies take account of family composition.

(56) See Section 2.4.1.

(57) RWI (2011), Table 4.1 p. 80+81.



Nevertheless, some groups remain more challenging than others. The in-work poverty rate for temporary workers and for single parents, however, are above the respective EU averages (Chart a). As was shown in Chapter 2, inequality is increasing in Germany amongst others as a result of more single households and more people in temporary contracts.

The in-work poverty rate for temporary workers is almost three times higher than for permanent workers, and the share of temporary workers is almost 15%, slightly above the EU average of 14%. The transition rate from permanent to temporary work is around 36%, which is slightly above the EU average of 34.6%. The relative unattractiveness of temporary work in Germany is due to high level of employment protection that permanent workers enjoy relative to temporary workers and the very high wage penalty associated with temporary work, the second highest in the EU after Poland (Table 2).

Also for very low work intensity the poverty rate of adults is extremely high (around 70%), one of the highest in the EU, and drops progressively to around 3.5% at very high intensity. Despite the large gain in terms of reducing the risk of poverty at very high work intensity, only about a third of adults live in households with 90-100% work intensity, one of

the lowest rates in the EU, reflecting high wages and the possibility of a household to live on the income of a single earner, as well as weak incentives for second earners to increase employment participation.

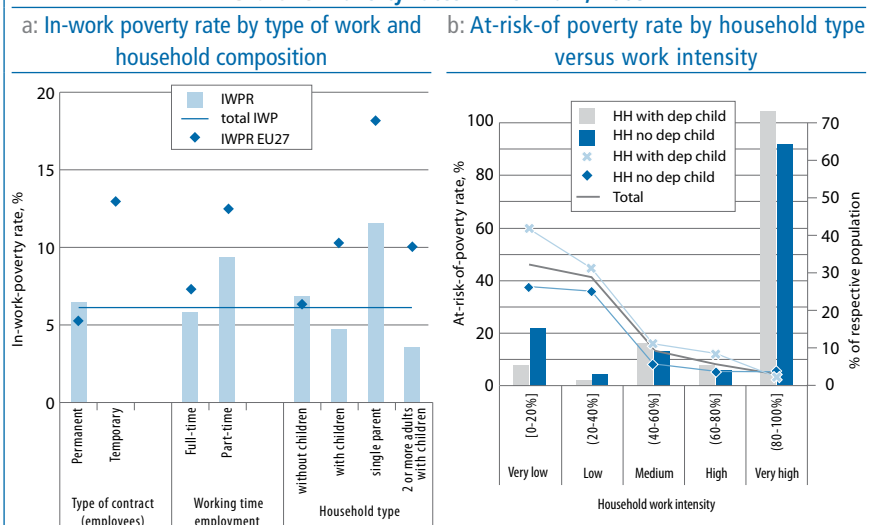
It should be noted in respect of the above that Germany has concentrated recently on increasing incentives to second earners for higher employment participation: provision for more childcare facilities, flexible working arrangements allowing for better reconciliation between family life and work, a first tax reform that allows for the individual monthly tax burden to reflect the personal income of each individual, etc.

### 5.2. Denmark

*Having a job, even if only part-time or for part of the year, offers a good protection against the risk of poverty in Denmark, as the poverty rate starts declining sharply already at work intensities of 50-60%.*

This reflects the ease of transitions, the high wages, and the adequate levels of income support for those who are partially employed or in non-working spells. Despite good income protection for part-time workers and a highly progressive tax system, more than 70% of adults live in households with very high work

Chart 43: Poverty rates in Denmark, 2009



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008

intensity (80-100 %), i.e. both adults in the household work full year, full-time jobs, which must reflect traditional and cultural attitudes to work.

This is true for households with and without children, reflecting the high participation of women due to existence of employment incentives for second earners, pro-family policies, well-developed childcare network, etc. Finally, the poverty rates move closely in line with respect to households with and without children at various levels of work intensity reflecting the fact that the Danish social security system provides targeted income support that take account of the family composition.

Denmark has a total in-work poverty rate of 5.9 %, which is well below the EU-27 average. The in-work poverty rate has been on a decreasing trend up to 2007 (4.8 % down to 4.1 %) but increased in 2008 and 2009 up to 5.9 % when also the income inequality increased though still being at a low level (see Chapter 2). Similarly, the in-work poverty rates for all groups along the three job characteristics are below or around the respective EU averages (Chart a). Moreover, in 2010 Denmark has the second highest employment rate in the EU-27, 76.1 % for persons aged 20-64 years after the Netherlands (76.8 %).

This favourable labour market outcome has been ascribed to the Danish flexicurity model, often put forward as a textbook example of the effective combination of labour market flexibility and social security support. In particular, there is high level of flexibility in employment relations due to the low level labour market regulation and employment protection legislation: it is easy to hire and dismiss workers, leading to high rates of job mobility, job creation, and job destruction. There is no statutory minimum wage with minimum pay rates negotiated between the social partners and set out in general agreements. High levels of union density (a little below 70 % second only to Sweden) and bargaining coverage (above 80 %) generally leads to high minimum pay rates<sup>(58)</sup>. Median and mean equivalised net incomes in Denmark are the second highest in the EU-27, after Luxembourg.

At the same time, Denmark focuses strongly on activation policies and life-long learning: an emphasis on active labour market policies rather than passive benefits linking entitlement to economic support to active job training, educational programmes, etc. This is combined with a universal and generous social security system and effective public

services that guarantee an adequate level of income support irrespective of whether the work contract is permanent or temporary, part-time or full-time.

The transition rate from part-time to full time employment is around 35 %<sup>(59)</sup>, which is higher than the EU average, and the largest share of part-time work is voluntary. The wage penalty associated with being on a temporary contract is insignificant, and more than half of the employees who work on temporary contracts do so voluntarily. Temporary work accounts for almost 9 % of total employment, while around 26 % of employees work part-time.

### 5.3. France

*The transition rate from temporary to permanent employment is 17 %, the lowest in the EU, reflecting the degree of labour market segmentation where temporary workers enjoy generally lower employment protection and are more vulnerable to unemployment spells between jobs, which contributes to the higher poverty rates for this group.*

The risk of in-work poverty is three time higher for employees on temporary contracts than it is for those on permanent contracts, but their share is around 15 %, slightly below the EU average.

The wage penalty for being in temporary employment is, however, insignificant, which suggests that the higher in-work poverty rate for temporary workers is rather a problem of insufficient income from other sources than wages (such as supplementary income support from the social and tax system) and possibly lower average employment participation due to unemployment spells between jobs. Indeed, France stands out as having a longstanding system of employee protection (including a generous social security system, minimum guarantee

(58) European Commission (2011), Charts 1.3 and 1.9.

(59) RWI (2011), RWI calculations Table 4.1, p. 80+81.

system, social and trade union rights), which is mostly tied to previous labour market experience. This is supported by the analysis in Chapter 2 where the inequality is growing in the 2000s and where it is seen that the lowest deciles, where many unemployed people can be found, were most affected by this increase.

France has a total in-work poverty rate of 6.7 %, which is below the EU average. The in-work poverty rate has a slightly increasing trend from 6.1 % to 6.7 %. Similarly, the in-work poverty rates for all groups along the three job characteristics are below the respective EU averages with the exception of temporary workers, where the poverty rate is around the EU average (Chart a). France had an employment rate of around the EU average at 69.1 % for persons aged 20-64 years in 2010.

At very low work intensity (up to 20 %) the poverty rate is around 50 %, it halves at work intensity of medium work intensity, and then drops to a low of around 3.5 % at very high intensity (Chart b). In line with the important reduction in the risk of poverty at very high work intensity, a fair share of about half of adults live in households with 80-100 % work intensity (compared to an EU average of just above 50 %).

The share of people in very-high-intensity households is similar for adults with and without children, reflecting relatively good incentives for employment participation of second earners, well developed network of childcare facilities, and flexible working time arrangements. Nevertheless, a significant number of mothers make a career interruption to care for their children: the share of people in medium (40-60 %) work intensity households is below 20 %, and it is higher for households with children. This partly reflects traditional family stereotypes, large families and the availability of targeted social support at household level depending on family composition.

Nevertheless, at this intensity level the gap between the poverty rate of people living in households with and without children is still large; in fact, it only starts converging to zero only at work intensity of around 70 %, which stresses the importance of second earners' employment participation in order to overcome poverty. France has targeted policies to support low-income groups, which explains the relatively low overall and in-work poverty rates (e.g. Prime pour l'emploi, which is a tax credit to employed persons with low income, reduced social contributions for specific groups, the RSA, etc.).

## 5.4. Ireland

*The main driving factor behind the in-work poverty in Ireland is not so much low wage incidence but the low rate of employment participation of specific groups.*

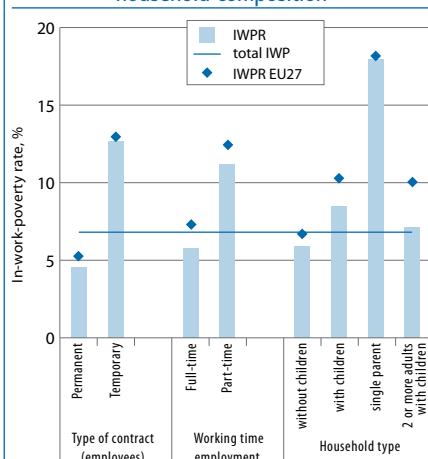
The share of people who live in households with very high intensity is only one-third (one of the lowest in the EU), while the share of people who live in a household with work intensity of 40-60 % (i.e. where often only one adult is employed) is relatively high (Chart b). As a result, the share of people in medium-work-intensity households with children is twice as high as that of people without dependent children. This reflects the traditionally low participation rates of women in employment with limited access to childcare and its high cost - estimated to be around 45 % of the average wage, compared to the 16 % EU average<sup>(60)</sup>.

However, the selective nature of the Irish social protection and tax systems allows for adequate income support for families, which is reflected in that poverty rates for people in households with and without children follow each other relatively closely at all work intensities except at the very lowest. At very low work intensity, the poverty rate of adults is low (30-40 %) compared to the EU average, and drops to a low of 2-3 % at work intensity of 70 %.

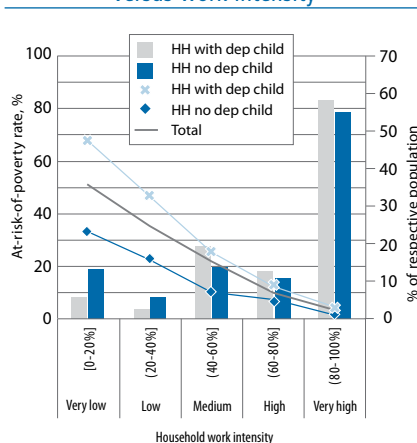
Ireland in-work poverty rate has been fluctuating between 5.4 % and 6.5 % ending up at 5.4 % in 2009, which is among the lowest rates in the EU. Similarly, the in-work poverty rates for all groups along the three job characteristics are below the respective EU averages (Chart a). Ireland only has an employment rate of 64.9 % for persons aged 20-64 years, which is below the EU average (68.6 %). The in-work poverty rate for part-time workers is more than twice that for full-time workers. Moreover, at 22 % the share of part-time

Chart 44: Poverty rates in France, 2009

a: In-work poverty rate by type of work and household composition



b: At-risk-of-poverty rate by household type versus work intensity



Source: Eurostat, EU SILC

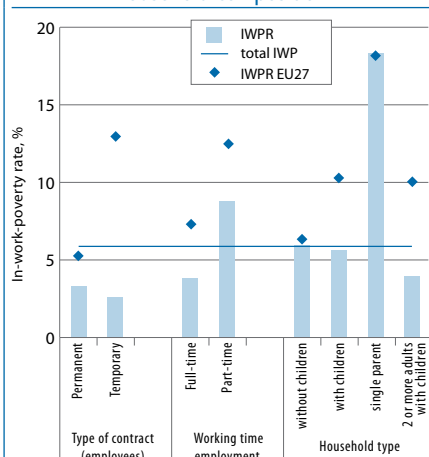
Note: EU SILC 2009, income year 2008

(60) Daly (2010).

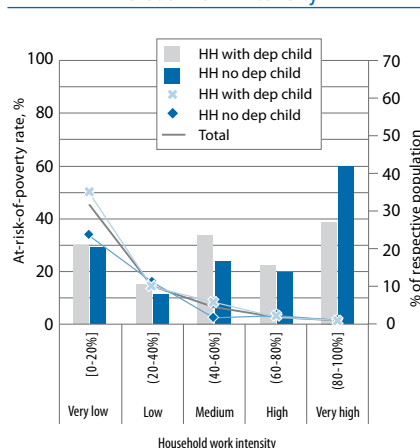


Chart 45: Poverty rates in Ireland, 2009

a: In-work poverty rate by type of work and household composition



b: At-risk-of poverty rate by household type versus work intensity



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008

The share of people in very-high-intensity households is slightly higher in those with dependent children than it is in households without children, reflecting the importance of full-time work of both parents to support an adequate family income.

Greece's overall in-work poverty rate was on a constantly increasing trend up to 2008 (from 12.9 % up to 14.3 %) with a slight descent to 13.8 % in 2009, which is the second highest in the EU, after Romania. Similarly, the in-work poverty rates for all groups along the three job characteristics are above the respective EU averages except for permanent workers. Greece has an employment rate of 64 % for persons aged 20-64 years, which is below the EU average (68.6 %).

Greece has the third lowest minimum wage in the EU-15, after Portugal and Spain, though its minimum wage is above those in the new Member States. The social and tax system does not ensure an adequate supplementary support to low-income workers, although the latter pay relatively high taxes and contributions. In particular, tax credits/rebates for low-income workers are not common and taxes and social contributions make up a high share of disposable income of

employment is higher than the EU average of around 19 %. A large share of part-time employment is involuntary, and the transition to full-time employment is lower than the EU average (18 % against almost 20 %<sup>(61)</sup>).

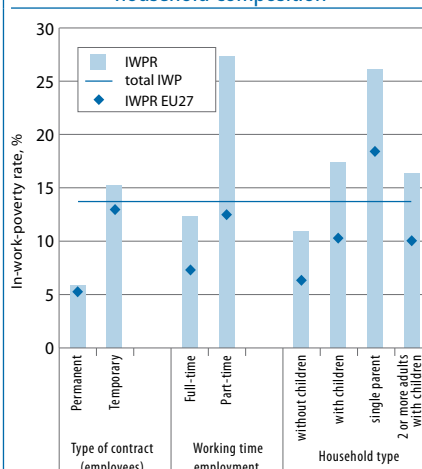
In Ireland, the main cause for poverty is not so much low hourly earnings: the median and mean equivalised net incomes in Ireland are the third highest in the EU after Denmark and Luxembourg<sup>(62)</sup>, with minimum wage levels being second only to those in Luxembourg. Furthermore, there is supplementary income support provided through the social and tax system with full tax exemption for those earning the statutory minimum wage, and a well developed system of selective tax credits, including targeted support at the working poor. Although the recent financial crisis has resulted in cuts in public spending, including a cut in the minimum wage and welfare payments, these rates remain at relatively high levels. Hence, the main policy response to addressing the crisis has been to focus on employment creation and work incentives.

## 5.5. Greece

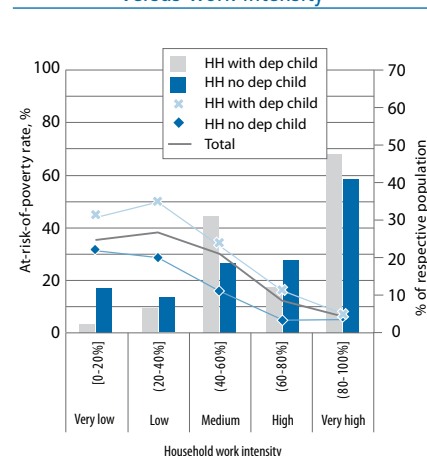
The Greek poverty rate is the lowest in the EU at very low work intensity (up to 20%), but remains relatively high, around 8%, at very high intensity. This reflects the relative importance of sources of income other than wages at low intensity levels, (e.g. income from property, self-employment, and from capital, unemployment, or other social assistance benefits<sup>(63)</sup>) as well as the relative importance of low wage incidence at high work intensity levels.

Chart 46: Poverty rates in Greece, 2009

a: In-work poverty rate by type of work and household composition



b: At-risk-of poverty rate by household type versus work intensity



Source: Eurostat, EU SILC

Note: EU SILC 2009, income year 2008

(61) RWI (2011) calculations, Table 4.1, p. 80+81.

(62) Eurostat statistics on income and living conditions, 2009.

(63) Reference Chart 36 on the income composition of the in-work poor.



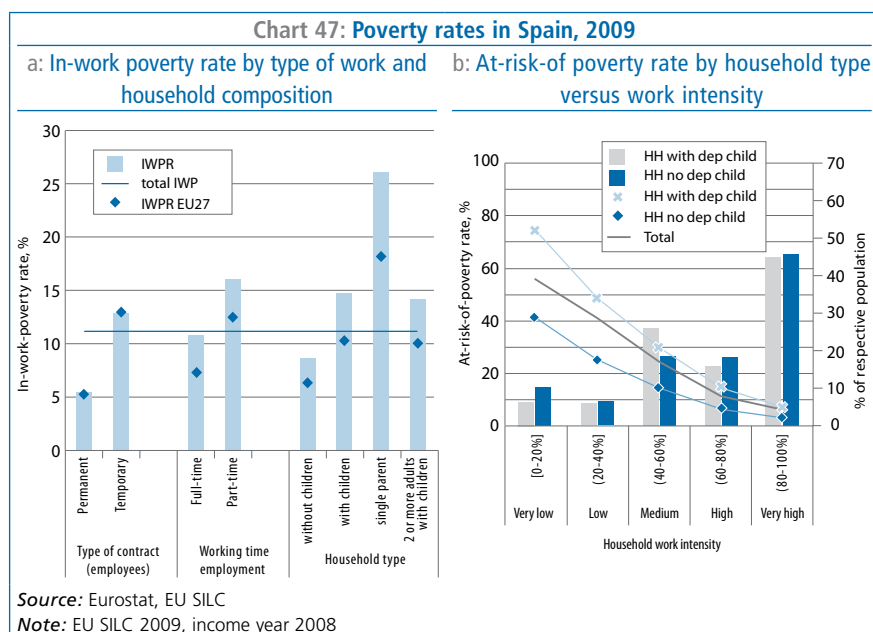
the in-work poor<sup>(64)</sup>. This leads to a relatively low disposable income for low-income workers, and hence relatively higher poverty rates even at high work intensities, compared to other Member States. According to the analysis in Chapter 2, Greece is the country in the EU with the highest inequality rates where the main feature is exactly the incapability of the social protection to reduce poverty.

While just around 45% of adults live in households with 80-100% work intensity, around 25% of adults live in households with medium work intensity (40-60%), which is one of the highest shares in the EU. Part-time work is not wide-spread in Greece (the share of part-time workers is 6.4%), and share of those employed on temporary contracts is below the EU average (12.4% against 14%). The most common explanation of low work intensity is the low participation of women, usually the result of caring for dependent children. Indeed, at medium work intensity, the share of households with children is twice as high for households without children. This is the result of traditional role stereotypes coupled with limited creation of incentives for second earners to increase their employment participation, including for example, limited access to childcare and flexible working arrangements, and financial support (grants, subsidies, tax rebates, etc.) for non-parental child care.

## 5.6. Spain

*Temporary workers in Spain have an in-work poverty rate that is more than double that of permanent workers (Chart a). This is important given that temporary employment accounts for 25% of total employment, the second largest in the EU after Poland.*

An important characteristic of the Spanish labour market is its duality with two-tier employment protection legislation: the labour market for



workers on permanent contracts is highly regulated, while that for workers on temporary or other atypical contracts is very flexible. Furthermore, being on a temporary contract is in most cases involuntary and it is associated with a rather large wage penalty. There is also a strong segmentation between permanent and temporary workers, with transition rate from temporary to permanent employment being somewhat below the EU average (33% versus 34.6%). Those working on atypical contracts have borne the brunt of the cyclical downturn.

Spain has an in-work poverty rate of 11.4%, which has increased steadily since 2005 (from 10.4% up to 11.4%). This is the third highest in the EU, after Greece and Romania. Similarly, the in-work poverty rates are above the respective EU averages irrespective of household type and working time, but around the EU average with respect to permanent and temporary workers (Chart a). Spain has the fifth lowest employment rate in the EU, at 62.5% for persons aged 20-64 years in 2010. In addition, Spain also experiences an increasing inequality on the income.

The statutory minimum wage is the second lowest in EU-15 countries and the third lowest in the EU-27 when compared to average earnings. Furthermore, the minimum wage really

only benefits permanent workers because of the duality of the labour market and the employment protection legislation, which explains why their in-work poverty rate is lower. A complex bargaining system influences adaptation of wages to economic and labour market conditions.

The poverty rate of people living in households with dependent children is significantly higher than that in households without children with a big gap at all levels except at the very highest work intensity of 80-100% (Chart b). One factor explaining this gap is the peculiarities of the Spanish social security system: the social transfers to the in-work poor account for a very small part of their budget, with a very limited share of household level support taking account of family type and composition<sup>(65)</sup>. In response to the crisis the Spanish government accelerated and expanded its fiscal consolidation efforts in order to halt the rapid increase in the government debt and tackle deficit. As part of its measures it foresees the withdrawal of €400 personal income tax credit and the phasing out of child related tax deductions, which will have a disproportionate effect on the low-income people<sup>(66)</sup>. Thus, work at full capacity

(64) Ziomas, Bouzas and Spyropoulou (2010). See also results in Chart 36.

(65) Cabrero (2010). Reference Chart 36.

(66) European Commission (2011d).

remains the best protection against poverty when having dependent children. Indeed, the share of people in very-high-intensity households is the same if living with dependent children than without (just below 45 %).

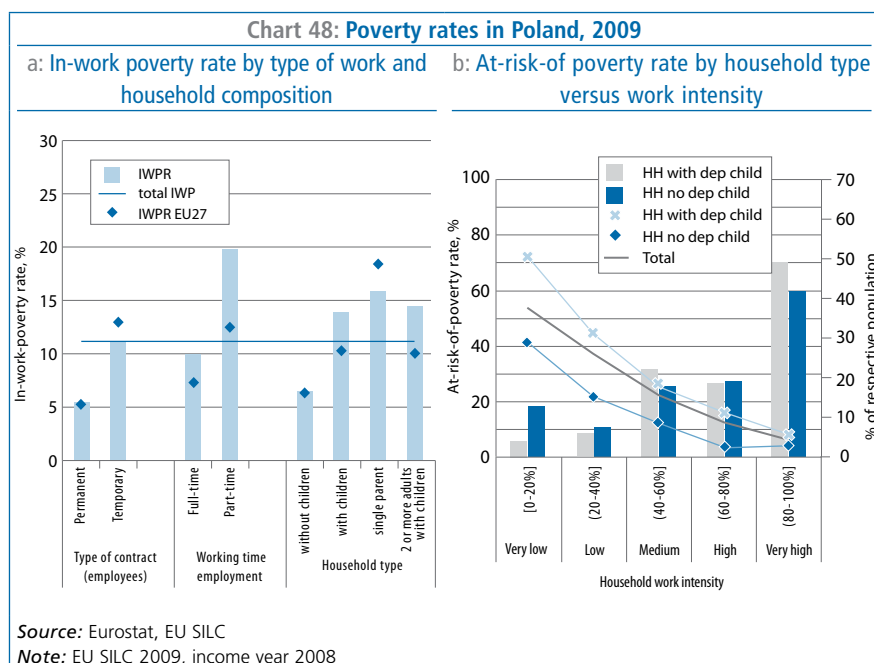
Around 30 % of adults live in households with medium work intensity (40-50 %), one of the highest shares in the EU. At this work intensity, the gap between the poverty rates of those living in households with and without children is around 15 pps, i.e. much higher than at higher intensities. At medium work intensity, the share of households with children is twice as high as that of households without children reflecting the low participation of women who take care of dependent children as a result of the prevalence of the traditional single breadwinner coupled with limited provision of child-care facilities and flexible working arrangements, and limited creation of employment incentives for second earners, including limited financial support for non-parental care.

## 5.7. Poland

*An important challenge in Poland is temporary work with the in-work poverty rate for temporary workers being twice as high as that for permanent ones (Chart a).*

The full-time contract is still the standard type of contract. In addition, the share of temporary workers in total employees is the highest in the EU (27.2 % against an EU average of 14 %). Around 20 % of those on temporary contracts do it involuntarily (see Chart 5) and the wage penalty associated with temporary work is the highest in the EU (Table 2). However, the transition rate from temporary to permanent employment at 34 % is close to the EU average (34.6 %).

Poland has a total in-work poverty rate of 11 %, which decreased throughout the whole period (from 13.8 % to 11.1 %) but is well above the EU-27 average. Similarly, the in-work poverty rates



for all groups along the three job characteristics are above the respective EU averages except for temporary workers and for single parents (Chart a). Poland has an employment rate of below 65 % in 2010 for persons aged 20-64, well below the EU average. Poland's poverty rate is relatively high at low work intensities, partly reflecting the lack of social assistance for casual work. It decreases gradually and remains at around 6.5 % at very high intensities (Chart b). The relatively high poverty rate at high intensities reflects to a large extent low wage incidence. The shares of people in very-high-intensity households with and without children are almost the same, reflecting the importance of full-time work of both parents in order to ensure an adequate family income. In addition to the decreasing in-work poverty rates, Poland also is experiencing falling inequality even though the inequality is one of the highest in EU (see Chapter 2).

Indeed Poland is among the L9 EU countries<sup>(67)</sup>, namely the nine EU countries with the lowest real household income per capita, and its statutory minimum wage is among the lowest in the EU. Collective bargaining coverage is generally low (less than 40 % as com-

pared to an EU-27 average of around 60 %, and an EU-15 average of almost 80 %), as is union density (15 % as compared to the EU average of around 30 %), while the fact that bargaining takes place at a very decentralised level leads to very wide differences in rates of pay. Relatively low wage incomes are coupled with low net transfers to low-income groups and generally high inequality: minor in-work benefits are targeted to low-wage earners but these are off-set by the Polish tax system which is not progressive (which penalises low income workers) and high social contributions<sup>(68)</sup>.

On the other hand, around 20 % of adults live in households with medium work intensity (40-60 %), one of the highest shares in the EU (Chart b). As part-time work is not wide-spread in Poland (the share of part-time workers is 7.5 %), the high share of people at this level of work intensity mostly captures the effect of only one adult working or temporary unemployment spells for example between temporary jobs. At medium work intensity, the share of households with children is higher than is the case for households without children reflecting the predominantly low participation of women who commonly quit work in order to take care of dependent children.

(67) In 2009, the real adjusted disposable income of Polish households was around 40 % less than the EU average. Eurostat (2011c), Figure 1.

(68) See also Chart 36 on income composition.

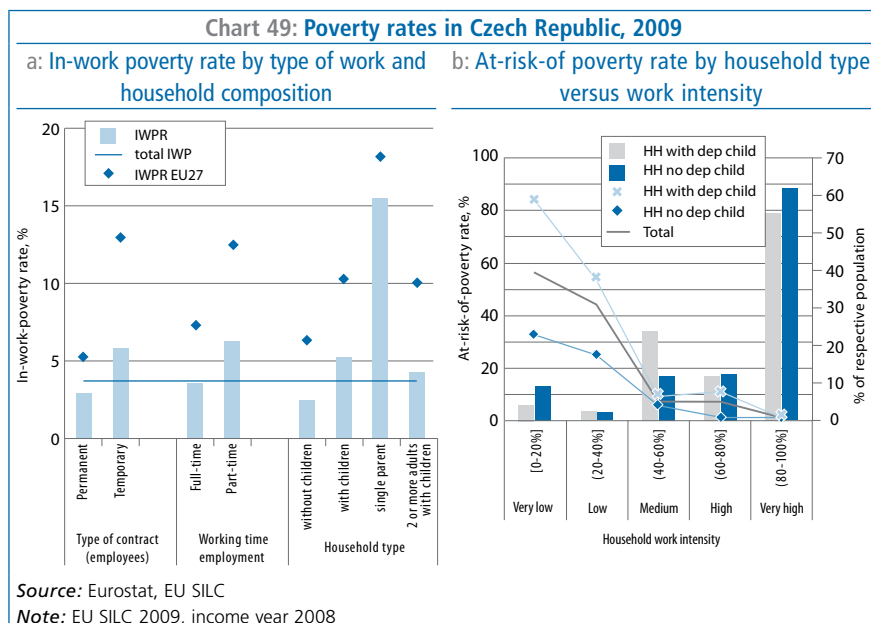
This reflects not only traditional stereotypes but also the limited access to childcare, especially in early age (up to 3 years of age), the general lack of access to flexible work, and the lack of financial support (grants, subsidies, tax rebates, etc.) for non-parental child care to increase work incentives for second earners. Only 2% of children aged under two and 27% of those aged 3-5 benefit from childcare institutions.

## 5.8. Czech Republic

*The Czech Republic has a total in-work poverty rate of 3.2%, which has been stable during the whole period. This is the lowest rate in the EU and the in-work poverty rates for all groups along the three job characteristics are below the respective EU averages (Chart a).*

The in-work poverty rate for temporary workers is, however, more than twice that for permanent workers, although temporary employment is not widespread in comparison to other Member States (temporary workers make up only 9% of employees against an EU average of 14%). The poverty risk for part-time workers is almost twice that for full-time workers but, again, part-time employment makes up only a small share of total employment (6% against an EU average of above 19%). The full-time, permanent contract is still the norm in the Czech Republic, and workers on such contracts, which are the majority, benefit from high levels of employment protection and income security, while protection for those on part-time or temporary contracts is low.

At household level, the poverty rate of adults is relatively high at low work intensities of up to 40%, partly reflecting the lack of social assistance for casual work, but then it drops sharply to below 10% at medium intensity and to just 2% at very high intensity, which is the lowest value in the EU (Chart b). Despite the low poverty rate already at medium work



intensity, moreover, nearly 60% of adults live in households with very high work intensity, one of the highest rates in the EU. One of the reasons, as mentioned above, is that the standard contract in the Czech Republic is for full-time work. Another is the need for both adults in the household to work because of generally low wages: Czech Republic is in the L9 group of EU countries, i.e. among the nine countries with the lowest real household income per capita in the EU<sup>(69)</sup>. The statutory minimum wage is lower than in EU-15 Member States, but it is among the highest in the new Member States. This helps explain why the share of adults in very-high-intensity households with children is only slightly below that of adults without children.

On the other hand, around 20% of adults live in households with medium (40-60%) work intensity, where the proportion of those with children is more than twice that of those without children. The insufficient development of child (and elderly) care facilities and the high cost for private care institutions coupled with traditional stereotypes and the peculiarity of family benefits, make caring at home the common practice especially

for children of up to 3 years of age. EU SILC data show that in the Czech Republic, as well as in some other new Member States like Romania, Bulgaria, Slovenia, Poland, Cyprus and Southern countries like Greece, Portugal, and Italy, households with children rely heavily on child care provided by relatives other than parents, which enables both parents to work full time in spite of the general insufficiency of early childcare network. Recent policy measures have been put in place, or are envisaged in order to provide support for the establishment of childcare facilities, for more flexible working time arrangements, and increased support for non-parental childcare, etc.<sup>(70)</sup>.

The low in-work poverty rate is to a large extent due to high redistributive effects of the Czech welfare state which has resulted in very low rates of inequality in the Czech Republic: in fact, the Czech Republic is among the countries with the lowest income inequality in the EU<sup>(71)</sup>. Thus, even though the median equivalised net income in the country is not high (slightly above €7 000, which is the third highest among

(69) In particular, in 2009, the real adjusted disposable income of Czech households was around 37% lower than the EU average. Eurostat (2011c).

(70) Czech national reform programme, 2011 and Eurofound (2010), Czech Republic.

(71) The Gini coefficient in 2009 shows that CZ is the country with the fifth lowest inequality in the EU after SI, HU, SK, and SE (Eurostat statistics on income and living conditions).

the new Member States, but still well below the EU average of over €14 500<sup>(72)</sup>), the income distribution is relatively compressed so that the number of households with incomes below the 60 % threshold are relatively few. In fact, this low rate of inequality in the Czech Republic has been achieved by an effective targeting of social transfers towards low earners, consisting of a combination of progressive income tax and targeted income-tested benefits which supplement low earnings, mainly for working families with children. Since the early 1990s such targeted policies have been put in place during the transition to a market economy to compensate for the increased living costs of low-income groups.

## 6. CONCLUSION

Combating poverty and social exclusion is a key objective of the Europe 2020 strategy for smart, sustainable, and inclusive growth. The European Platform against poverty and social exclusion sets out actions to reach the EU target of reducing poverty and social exclusion by at least 20 million by 2020.

114 million people in the EU were at risk of poverty or social exclusion in 2009, which represents 23 % of the EU population. Having a job remains the best safeguard against poverty and social exclusion, but it is no guarantee: above 8 % of the working population lives in households with an income below the national poverty threshold. This percentage has remained largely stable on the EU level, and even increased in some countries, despite recent trends in employment growth.

The analysis in this chapter has identified three main mechanisms that lead to in-work poverty: inadequate hourly/monthly earnings, low labour force attachment, and household structure.

One of the main findings of the analysis is that low wages are an important determinant of in-work poverty through its decisive impact on household income, namely, the lower the wage, the higher the rate of in-work poverty. The effect is especially pronounced in countries where decentralised collective bargaining and low collective bargaining coverage lead to high earnings dispersion and low minimum wages. In some countries, raising low wages, especially where they lag significantly behind productivity developments, and facilitating upward transitions, could help overcome the low-wage trap and motivate more people to increase their employment participation.

Higher minimum wages are associated with lower levels of in-work poverty. However, their effectiveness can in some cases be limited as they cannot be easily targeted, and in particular they do not provide support to a large majority of in-work poor who fall outside their scope (e.g. those in self-employment, or casual or part-time jobs). They can also hamper job creation for the low skilled.

Second, working on a temporary contract is an important factor of in-work poverty. The in-work poverty rate is on average almost two times higher for people working on temporary contracts or part-time. Furthermore, temporary contracts are often associated with lower wages. On average, temporary workers are paid 14 % less than permanent workers after controlling for age, gender, education, and experience. This is especially a concern in countries where the percentage of involuntary temporary or part-time work is high and where the transition rates towards better paid or permanent contracts are low. The current labour market trends showing that the increase in the overall employment since mid-2010 was mainly borne by more temporary jobs and to a very little extent from permanent jobs point to a risk of seeing an increase in in-work poverty in the coming years.

Another finding that has emerged from the analysis is that self-employment is a very important factor of in-work poverty in some Member States. This result should be interpreted with care because of difficulties in measuring self-employment. Nevertheless, it raises a number of important policy questions. The particular effects of policies on the income, labour market, and social situation of the self-employed is an emerging topic for further research and policy discussions. This dimension should be taken into account when assessing the effectiveness of measures that promote job creation through entrepreneurship and self-employment.

Furthermore, household composition and the combined employment participation of all adults in the household are of particular importance. The empirical evidence shows that in most countries the one breadwinner family model does not really protect from poverty. The higher the combined employment participation of the family is, the lower the risk of poverty. In most Member States, the risk of poverty for individuals in households with low to medium work intensity (typically represented by the one-breadwinner family model) ranges between 15 % and 50 %.

Lone parents and their children are particularly exposed to a higher risk of in-work poverty and represent clear targets for focused action. Furthermore, the presence of children is a factor impacting the poverty rate, and this impact is much more pronounced at low work intensities. In particular, people living in low-intensity households with children face twice as high a risk of poverty as compared with those in childless households. The gap in the poverty rates of people in households with and without children gradually diminishes with the increase in work intensity, and it is practically non-existent at very high intensity.

Policies that have been identified that support these groups at risk include in-work benefits accounting for the household structure and composition

(72) Eurostat statistics on income and living conditions, 2009.

(e.g. benefits for lone parents or big families, childcare benefits, etc.), and creation of incentives for second earners to increase their employment participation, including for example, access to affordable childcare and care for the elderly, flexible working arrangements, financial support for non-parental care, lifelong learning and up-skilling, etc.

The chapter also shows that there is room for raising the quality and efficiency of social spending, and better exploiting the role of in-kind benefits in mitigating inequalities and decreasing poverty. Thus the analysis shows that although on average higher government spending on social protection is associated

with higher reduction in in-work poverty rate, some Member States manage to achieve similar reductions in poverty rates with lower rates of spending by combining a well performing labour market with a social security system that supports better work incentives.

Analysis of certain personal characteristics such as the level of education and skills, shows that people with low educational levels and experience have a 4 times higher risk of poverty than those with high education. Unfortunately, the analysis also shows that the low-skilled have lower participation rates in LLL than the high-skilled. Improving access to LLL for the low-skilled is therefore

essential to facilitate upward transitions and combat in-work poverty.

In conclusion, the recent crisis, developments in the financial markets and their repercussions on the real economy, including the level and characteristics of job creation, increased share of temporary employment, etc., make the situation of the in-work poor much more apparent. Therefore, it is paramount to monitor the situation of the in-work poor in the near future, and to assess the effectiveness of policies in supporting labour market participation of all adults in the household, in providing a living wage, and in facilitating upward transitions for those trapped in low-paid or precarious jobs.

## ANNEX 1

## Determinants of in-work poverty: odd-ratios (Logit estimates)

VARIABLES	(1) EU (with country fixed effects)	(2) EU (with country fixed effects)	(3) EU (with country fixed effects)	(4) AT	(5) AT	(6) AT
Low work intensity	7.753*** (0.073)	5.420*** (0.128)	4.763*** (0.097)	7.934*** (0.501)	5.354*** (0.700)	4.959*** (0.594)
Child/adult ratio	2.171*** (0.013)	2.431*** (0.032)	2.031*** (0.021)	1.786*** (0.070)	1.845*** (0.124)	1.727*** (0.101)
Low wage	4.275*** (0.034)	5.016*** (0.083)	3.986*** (0.054)	4.107*** (0.217)	10.517*** (0.936)	6.618*** (0.521)
Age		1.025*** (0.001)			1.043*** (0.008)	
Education		0.795*** (0.007)	0.780*** (0.005)		0.807*** (0.042)	0.869*** (0.037)
Male		1.748*** (0.033)	1.424*** (0.020)		2.321*** (0.236)	1.537*** (0.127)
Extra EU		1.839*** (0.053)	1.950*** (0.050)		1.946*** (0.219)	2.144*** (0.226)
Health status		1.137*** (0.012)	1.180*** (0.010)		1.126*** (0.057)	1.169*** (0.052)
Work experience		0.980*** (0.001)	0.992*** (0.001)		0.973*** (0.007)	1.009*** (0.003)
Firm size		0.966*** (0.002)	0.963*** (0.001)		0.946*** (0.010)	0.968*** (0.009)
Urbanisation		0.890*** (0.014)	0.861*** (0.012)		1.579*** (0.132)	1.576*** (0.120)
Temporary contract		1.475*** (0.028)			0.622*** (0.091)	
Involuntary part-time		2.677*** (0.096)			1.383 (0.314)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	932045	382578	462661	26889	17868	19881
Pseudo R2	0.161	0.231	0.239	0.122	0.231	0.192

z-statistics in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



VARIABLES	(7) BE	(8) BE	(9) BE	(10) BG	(11) BG	(12) BG
Low work intensity	17.014*** (1.052)	7.979*** (1.145)	8.179*** (1.032)	18.506*** (0.900)	9.789*** (1.020)	10.884*** (0.897)
Child/adult ratio	2.338*** (0.091)	2.057*** (0.166)	1.718*** (0.110)	3.033*** (0.136)	2.159*** (0.183)	2.449*** (0.167)
Low wage	4.071*** (0.247)	4.845*** (0.538)	4.379*** (0.411)	2.827*** (0.154)	5.194*** (0.472)	4.213*** (0.324)
Age		1.047*** (0.010)			0.999 (0.004)	
Education		0.818*** (0.040)	0.784*** (0.029)		0.602*** (0.034)	0.538*** (0.024)
Male		1.865*** (0.221)	1.524*** (0.137)		1.260** (0.124)	1.113 (0.089)
Extra EU		5.622*** (0.947)	5.892*** (0.896)		1.619 (0.990)	3.046** (1.449)
Health status		1.236*** (0.080)	1.295*** (0.066)		1.244*** (0.078)	1.319*** (0.062)
Work experience		0.958*** (0.009)	0.994 (0.004)			
Firm size		0.965*** (0.013)	0.958*** (0.009)		0.982 (0.012)	1.037*** (0.008)
Urbanisation		1.252** (0.128)	1.240*** (0.100)		0.519*** (0.051)	0.537*** (0.044)
Temporary contract		1.718*** (0.226)			2.520*** (0.272)	
Involuntary part-time		3.367*** (0.549)			2.545*** (0.641)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	27307	18211	20724	22957	13109	16208
Pseudo R2	0.207	0.273	0.239	0.278	0.308	0.317

z-statistics in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

VARIABLES	(13) CY	(14) CY	(15) CY	(16) CZ	(17) CZ	(18) CZ
Low work intensity	7.330*** (0.488)	4.963*** (0.665)	4.886*** (0.584)	12.173*** (0.783)	5.812*** (0.898)	5.947*** (0.825)
Child/adult ratio	1.018 (0.044)	1.093 (0.074)	1.060 (0.064)	2.991*** (0.138)	2.657*** (0.218)	2.448*** (0.171)
Low wage	2.236*** (0.129)	2.959*** (0.311)	1.877*** (0.178)	3.559*** (0.209)	5.025*** (0.513)	4.263*** (0.387)
Age		1.015** (0.007)			0.996 (0.007)	
Education		0.886*** (0.032)	0.888*** (0.029)		0.475*** (0.048)	0.643*** (0.052)
Male		1.923*** (0.221)	1.550*** (0.153)		1.708*** (0.190)	1.534*** (0.143)
Extra EU		2.684*** (0.398)	3.606*** (0.435)		5.223*** (1.702)	5.165*** (1.324)
Health status		1.160*** (0.060)	1.182*** (0.053)		1.212*** (0.073)	1.224*** (0.062)
Work experience		0.985** (0.007)	0.987*** (0.003)		0.999 (0.007)	0.994 (0.004)
Firm size		0.978** (0.010)	1.004 (0.009)		0.965*** (0.012)	0.983* (0.009)
Urbanisation		0.826** (0.066)	0.843** (0.062)		0.966 (0.104)	1.039 (0.096)
Temporary contract		1.415*** (0.175)			1.269** (0.142)	
Involuntary part-time		1.644 (0.566)			1.464 (0.663)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	19311	12931	15059	43439	25741	29417
Pseudo R2	0.108	0.206	0.181	0.143	0.189	0.166

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

VARIABLES	(19) DE	(20) DE	(21) DE	(22) DK	(23) DK	(24) DK
Low work intensity	12.506*** (0.574)	8.126*** (0.798)	8.067*** (0.728)	10.632*** (1.038)	9.845*** (4.071)	7.136*** (2.621)
Child/adult ratio	1.139*** (0.038)	1.181*** (0.058)	1.080* (0.048)	2.563*** (0.123)	2.079*** (0.246)	2.624*** (0.263)
Low wage	3.997*** (0.157)	5.175*** (0.309)	4.869*** (0.264)	8.905*** (0.561)	7.234*** (1.261)	8.787*** (1.256)
Age		1.007 (0.005)			0.980*** (0.007)	
Education		0.904*** (0.027)	0.915*** (0.023)		1.292*** (0.112)	1.192** (0.084)
Male		1.318*** (0.087)	1.166*** (0.065)		1.301 (0.231)	1.050 (0.165)
Extra EU		1.429*** (0.188)	1.378*** (0.163)		1.132 (0.590)	2.341** (0.935)
Health status		1.225*** (0.044)	1.254*** (0.041)		0.721*** (0.079)	0.793*** (0.071)
Work experience		0.991* (0.005)	0.993*** (0.002)			
Firm size		0.969*** (0.008)	0.985** (0.006)		0.979 (0.021)	0.966** (0.016)
Urbanisation		1.259*** (0.066)	1.255*** (0.059)		1.257 (0.205)	1.281* (0.187)
Temporary contract		1.630*** (0.118)				
Involuntary part-time		1.882*** (0.205)			2.061 (1.138)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	50823	35176	40388	32167	9405	10995
Pseudo R2	0.148	0.164	0.146	0.178	0.183	0.254

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

VARIABLES	(25) EE	(26) EE	(27) EE	(28) EL	(29) EL	(30) EL
Low work intensity	14.110*** (0.813)	7.915*** (1.060)	6.960*** (0.874)	3.795*** (0.169)	5.903*** (0.584)	4.081*** (0.315)
Child/adult ratio	2.245*** (0.074)	2.513*** (0.158)	2.225*** (0.120)	1.878*** (0.056)	2.408*** (0.163)	2.058*** (0.082)
Low wage	4.975*** (0.231)	5.481*** (0.458)	6.975*** (0.529)	3.801*** (0.135)	3.546*** (0.362)	2.821*** (0.167)
Age		1.012 (0.010)			1.003 (0.004)	
Education		0.849*** (0.037)	0.900*** (0.032)		0.838*** (0.029)	0.808*** (0.016)
Male		0.976 (0.095)	1.191** (0.096)		1.829*** (0.178)	1.279*** (0.064)
Extra EU		1.553*** (0.168)	1.462*** (0.145)		1.930*** (0.197)	1.914*** (0.151)
Health status		0.965 (0.054)	1.023 (0.048)		1.051 (0.060)	1.177*** (0.034)
Work experience		0.994 (0.009)	0.999 (0.003)			
Firm size		0.971*** (0.010)	0.926*** (0.007)		0.958*** (0.008)	0.945*** (0.006)
Urbanisation		0.903 (0.084)	0.913 (0.076)		0.767*** (0.060)	0.854*** (0.045)
Temporary contract		0.916 (0.266)			1.773*** (0.143)	
Involuntary part-time		4.670*** (1.027)			2.955*** (0.358)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	25334	15000	16507	29008	13759	21527
Pseudo R <sup>2</sup>	0.191	0.216	0.249	0.0868	0.257	0.222

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

VARIABLES	(31) ES	(32) ES	(33) ES	(34) FI	(35) FI	(36) FI
Low work intensity	4.763*** (0.224)	4.098*** (0.301)	3.690*** (0.234)	13.073*** (0.660)	9.017*** (1.651)	5.924*** (0.873)
Child/adult ratio	2.592*** (0.069)	3.711*** (0.164)	2.628*** (0.083)	1.723*** (0.037)	1.342*** (0.117)	1.279*** (0.065)
Low wage	5.381*** (0.150)	4.038*** (0.201)	3.605*** (0.128)	4.957*** (0.195)	5.776*** (0.700)	8.712*** (0.897)
Age		1.021*** (0.004)			0.964*** (0.005)	
Education		0.870*** (0.017)	0.858*** (0.012)		0.798*** (0.053)	0.806*** (0.030)
Male		1.854*** (0.104)	1.548*** (0.062)		1.375** (0.188)	1.007 (0.088)
Extra EU		1.796*** (0.128)	1.710*** (0.105)		4.598*** (1.831)	5.045*** (1.551)
Health status		1.068* (0.037)	1.107*** (0.028)		0.995 (0.084)	0.975 (0.047)
Work experience		0.990*** (0.004)	1.004** (0.002)			
Firm size		0.962*** (0.005)	0.926*** (0.004)		0.990 (0.014)	1.000 (0.009)
Urbanisation		0.832*** (0.037)	0.786*** (0.027)			
Temporary contract		1.554*** (0.077)			1.856*** (0.231)	
Involuntary part-time		2.652*** (0.278)			4.518*** (1.011)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	54024	37219	45844	53575	12526	16888
Pseudo R2	0.134	0.207	0.211	0.150	0.296	0.196

z-statistics in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

VARIABLES	(37) FR	(38) FR	(39) FR	(40) HU	(41) HU	(42) HU
Low work intensity	8.993*** (0.454)	8.843*** (1.106)	8.798*** (1.006)	8.842*** (0.367)	5.469*** (0.494)	5.381*** (0.427)
Child/adult ratio	2.607*** (0.082)	2.042*** (0.114)	1.823*** (0.089)	3.237*** (0.098)	2.405*** (0.140)	2.274*** (0.114)
Low wage	3.595*** (0.179)	3.440*** (0.297)	3.538*** (0.258)	4.185*** (0.195)	5.635*** (0.396)	4.800*** (0.297)
Age		1.008 (0.007)			1.006 (0.004)	
Education		0.877*** (0.033)	0.806*** (0.025)		0.623*** (0.036)	0.613*** (0.029)
Male		1.879*** (0.182)	1.331*** (0.103)		1.517*** (0.127)	1.387*** (0.098)
Extra EU		3.018*** (0.442)	2.766*** (0.369)		3.831*** (1.837)	3.993*** (1.562)
Health status		1.205*** (0.057)	1.228*** (0.049)		1.096** (0.049)	1.109*** (0.039)
Work experience		0.993 (0.006)	0.991*** (0.003)			
Firm size		0.955*** (0.009)	0.962*** (0.008)		0.959*** (0.008)	0.975*** (0.006)
Urbanisation		1.083 (0.083)	1.106 (0.075)		0.651*** (0.058)	0.661*** (0.049)
Temporary contract		1.793*** (0.161)			1.508*** (0.127)	
Involuntary part-time		2.807*** (0.403)			6.692*** (1.445)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	34233	20649	23892	40535	23596	27491
Pseudo R2	0.139	0.210	0.200	0.202	0.263	0.233

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1



VARIABLES	(43) IE	(44) IE	(45) IE	(46) IT	(47) IT	(48) IT
Low work intensity	10.000*** (0.602)	2.881*** (0.576)	2.677*** (0.375)	6.598*** (0.179)	5.880*** (0.343)	5.401*** (0.252)
Child/adult ratio	1.343*** (0.047)	1.898*** (0.161)	1.302*** (0.076)	2.885*** (0.061)	3.216*** (0.132)	2.651*** (0.080)
Low wage	3.508*** (0.216)	5.870*** (0.761)	3.207*** (0.309)	2.861*** (0.072)	5.371*** (0.262)	3.372*** (0.130)
Age		1.017* (0.010)			1.034*** (0.004)	
Education		0.872** (0.046)	0.805*** (0.028)		0.717*** (0.019)	0.716*** (0.014)
Male		1.338* (0.207)	1.133 (0.125)		2.683*** (0.144)	1.826*** (0.070)
Extra EU		1.959** (0.665)	1.629* (0.431)		2.031*** (0.138)	2.242*** (0.132)
Health status		1.053 (0.093)	1.303*** (0.078)		1.094*** (0.035)	1.214*** (0.029)
Work experience		0.993 (0.009)	0.997 (0.004)		0.967*** (0.004)	0.974*** (0.002)
Firm size		0.942*** (0.013)	0.920*** (0.009)		0.930*** (0.005)	0.955*** (0.004)
Urbanisation		0.606*** (0.089)	0.534*** (0.057)		1.186*** (0.052)	1.126*** (0.038)
Temporary contract		2.061*** (0.349)			1.519*** (0.079)	
Involuntary part-time		2.391*** (0.491)			2.624*** (0.207)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	22006	11701	15178	89449	49546	66053
Pseudo R2	0.154	0.211	0.192	0.128	0.280	0.219

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

VARIABLES	(49) LT	(50) LT	(51) LT	(52) LU	(53) LU	(54) LU
Low work intensity	13.000*** (0.775)	11.729*** (1.683)	8.571*** (1.126)	5.184*** (0.316)	5.019*** (0.649)	5.421*** (0.654)
Child/adult ratio	2.491*** (0.096)	2.700*** (0.196)	2.207*** (0.129)	2.491*** (0.080)	2.123*** (0.110)	1.981*** (0.093)
Low wage	4.881*** (0.240)	5.126*** (0.453)	4.948*** (0.411)	4.382*** (0.182)	4.565*** (0.323)	4.683*** (0.304)
Age		1.028*** (0.010)			1.040*** (0.007)	
Education		0.772*** (0.040)	0.775*** (0.032)		0.826*** (0.025)	0.839*** (0.023)
Male		1.093 (0.112)	1.049 (0.082)		2.555*** (0.234)	2.269*** (0.182)
Extra EU		0.661 (0.368)	0.743 (0.367)		2.347*** (0.254)	2.563*** (0.256)
Health status		1.289*** (0.081)	1.301*** (0.066)		1.116*** (0.040)	1.176*** (0.039)
Work experience		0.968*** (0.009)	0.996 (0.003)		0.978*** (0.006)	1.002 (0.003)
Firm size		0.970** (0.012)	0.975*** (0.009)		0.972*** (0.007)	0.960*** (0.006)
Urbanisation		0.558*** (0.050)	0.511*** (0.042)		1.503*** (0.090)	1.485*** (0.083)
Temporary contract		1.932*** (0.309)			1.787*** (0.155)	
Involuntary part-time		1.542* (0.370)			3.611*** (0.521)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	22959	13467	15289	21444	14788	16374
Pseudo R2	0.183	0.245	0.262	0.129	0.316	0.284

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

VARIABLES	(55) LV	(56) LV	(57) LV	(58) MT	(59) MT	(60) MT
Low work intensity	15.149*** (0.820)	4.989*** (0.652)	5.116*** (0.616)	8.664*** (0.631)	4.914*** (0.938)	4.917*** (0.829)
Child/adult ratio	1.728*** (0.056)	2.239*** (0.132)	1.787*** (0.093)	3.351*** (0.211)	4.728*** (0.742)	4.304*** (0.594)
Low wage	5.642*** (0.246)	9.453*** (0.704)	9.043*** (0.621)	1.660*** (0.161)	4.615*** (0.757)	2.996*** (0.425)
Age		1.042*** (0.008)			1.018 (0.013)	
Education		0.855*** (0.037)	0.843*** (0.031)		0.804* (0.090)	0.838* (0.083)
Male		1.301*** (0.107)	1.130* (0.077)		1.983*** (0.374)	1.535*** (0.245)
Extra EU		1.296*** (0.121)	1.310*** (0.110)		1.779 (0.769)	1.612 (0.625)
Health status		1.363*** (0.068)	1.426*** (0.061)		0.885 (0.101)	0.886 (0.089)
Work experience		0.956*** (0.007)	0.991*** (0.003)		0.990 (0.014)	0.996 (0.006)
Firm size		0.986* (0.008)	0.975*** (0.006)		0.847*** (0.049)	0.898** (0.046)
Urbanisation		0.548*** (0.041)	0.540*** (0.037)		1.001 (0.230)	1.123 (0.218)
Temporary contract		1.685*** (0.217)			0.738 (0.213)	
Involuntary part-time		5.181*** (1.114)			1.113 (0.390)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	23157	14600	16496	8846	3616	4139
Pseudo R2	0.206	0.283	0.285	0.145	0.257	0.219

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

VARIABLES	(64) PL	(62) PL	(63) PL	(64) PT	(65) PT	(66) PT
Low work intensity	4.241*** (0.117)	4.248*** (0.247)	3.423*** (0.174)	5.414*** (0.279)	5.973*** (0.692)	4.598*** (0.450)
Child/adult ratio	2.636*** (0.051)	2.982*** (0.119)	2.344*** (0.064)	2.116*** (0.085)	2.863*** (0.227)	2.265*** (0.136)
Low wage	4.335*** (0.103)	4.041*** (0.186)	3.807*** (0.149)	3.255*** (0.156)	3.733*** (0.309)	2.488*** (0.152)
Age		1.025*** (0.005)			0.990 (0.008)	
Education		0.777*** (0.020)	0.796*** (0.014)		0.730*** (0.044)	0.648*** (0.031)
Male		1.545*** (0.084)	1.325*** (0.045)		1.483*** (0.150)	1.256*** (0.090)
Extra EU		0.354 (0.366)	0.946 (0.465)		0.890 (0.228)	1.202 (0.265)
Health status		1.147*** (0.035)	1.206*** (0.025)		1.242*** (0.064)	1.266*** (0.049)
Work experience		0.971*** (0.004)	0.983*** (0.001)		1.012 (0.007)	0.997 (0.003)
Firm size		0.979*** (0.005)	0.993* (0.004)		0.961*** (0.008)	0.934*** (0.006)
Urbanisation		0.603*** (0.030)	0.647*** (0.027)		0.787*** (0.066)	0.753*** (0.051)
Temporary contract		1.356*** (0.060)			1.728*** (0.150)	
Involuntary part-time		3.484*** (0.465)			3.045*** (0.534)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	71242	36842	48942	21965	12477	15994
Pseudo R2	0.124	0.237	0.239	0.102	0.222	0.209

z-statistics in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

VARIABLES	(67) RO	(68) RO	(69) RO	(70) SE	(71) SE	(72) SE
Low work intensity	2.778*** (0.129)	3.065*** (0.411)	1.538*** (0.151)	11.064*** (0.761)	3.907*** (0.978)	4.748*** (1.130)
Child/adult ratio	2.166*** (0.059)	2.350*** (0.151)	1.745*** (0.066)	1.488*** (0.054)	0.857* (0.080)	0.933 (0.079)
Low wage	9.389*** (0.319)	6.392*** (0.578)	2.694*** (0.151)	6.873*** (0.329)	9.052*** (1.027)	11.121*** (1.123)
Age		1.016** (0.008)			0.969*** (0.005)	
Education		0.660*** (0.048)	0.628*** (0.022)		1.036 (0.065)	1.070 (0.060)
Male		3.624*** (0.377)	2.005*** (0.096)		1.547*** (0.188)	1.539*** (0.176)
Extra EU			4.397 (5.014)		3.065*** (0.840)	3.068*** (0.798)
Health status		1.156** (0.074)	1.023 (0.033)		1.049 (0.071)	0.977 (0.059)
Work experience		0.998 (0.008)	0.987*** (0.002)			
Firm size		0.963*** (0.012)	0.958*** (0.006)		0.969** (0.014)	0.970** (0.012)
Urbanisation		0.351*** (0.036)	0.339*** (0.029)		1.308** (0.158)	1.390*** (0.157)
Temporary contract		2.247*** (0.309)			1.546*** (0.194)	
Involuntary part-time		3.027 (2.061)			1.631** (0.342)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	33202	18021	25606	37694	11576	12165
Pseudo R2	0.182	0.262	0.411	0.144	0.244	0.221

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

VARIABLES	(73) SI	(74) SI	(75) SI	(76) SK	(77) SK	(78) SK
Low work intensity	9.983*** (0.455)	6.689*** (1.215)	5.884*** (0.966)	13.088*** (0.751)	6.454*** (0.787)	6.135*** (0.670)
Child/adult ratio	1.718*** (0.059)	1.808*** (0.197)	1.466*** (0.136)	3.573*** (0.137)	3.762*** (0.233)	3.292*** (0.180)
Low wage	4.342*** (0.178)	4.748*** (0.582)	5.307*** (0.603)	3.743*** (0.196)	5.951*** (0.465)	4.773*** (0.318)
Age		1.051*** (0.014)			1.044*** (0.011)	
Education		0.698*** (0.059)	0.748*** (0.055)		0.802*** (0.055)	0.824*** (0.048)
Male		1.217 (0.163)	1.061 (0.124)		1.587*** (0.143)	1.333*** (0.103)
Extra EU						
Health status		1.084 (0.073)	1.092 (0.064)		0.992 (0.047)	1.034 (0.043)
Work experience		0.971** (0.012)	1.005 (0.005)		0.968*** (0.010)	1.004 (0.003)
Firm size		0.947*** (0.014)	0.943*** (0.011)		0.977** (0.009)	0.996 (0.007)
Urbanisation					0.906 (0.079)	0.853** (0.065)
Temporary contract		1.617*** (0.236)			1.203** (0.114)	
Involuntary part-time		6.899*** (3.250)			4.012*** (0.981)	
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	56790	11539	12568	30739	20788	23224
Pseudo R2	0.134	0.210	0.205	0.198	0.212	0.183

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1



VARIABLES	(79) UK	(80) UK	(81) UK
Low work intensity	7.517*** (0.458)	5.895*** (1.566)	5.007*** (0.685)
Child/adult ratio	1.980*** (0.066)	2.663*** (0.221)	2.117*** (0.090)
Low wage	3.248*** (0.142)	2.635*** (0.310)	2.751*** (0.165)
Age		1.017*** (0.005)	
Education		0.877** (0.055)	0.801*** (0.025)
Male		1.094 (0.133)	1.169** (0.074)
Extra EU		2.494*** (0.497)	1.417*** (0.167)
Health status		1.087 (0.074)	1.108*** (0.039)
Work experience			
Firm size		1.018 (0.014)	0.953*** (0.005)
Urbanisation		1.425*** (0.179)	1.075 (0.064)
Temporary contract		1.296 (0.299)	
Involuntary part-time		2.514*** (0.660)	
Year fixed effects	YES	YES	YES
Observations	32950	9811	26791
Pseudo R2	0.0980	0.168	0.134

z-statistics in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

## ANNEX 2

Chart 50: Poverty rate and share of adults versus household work intensity, 2009

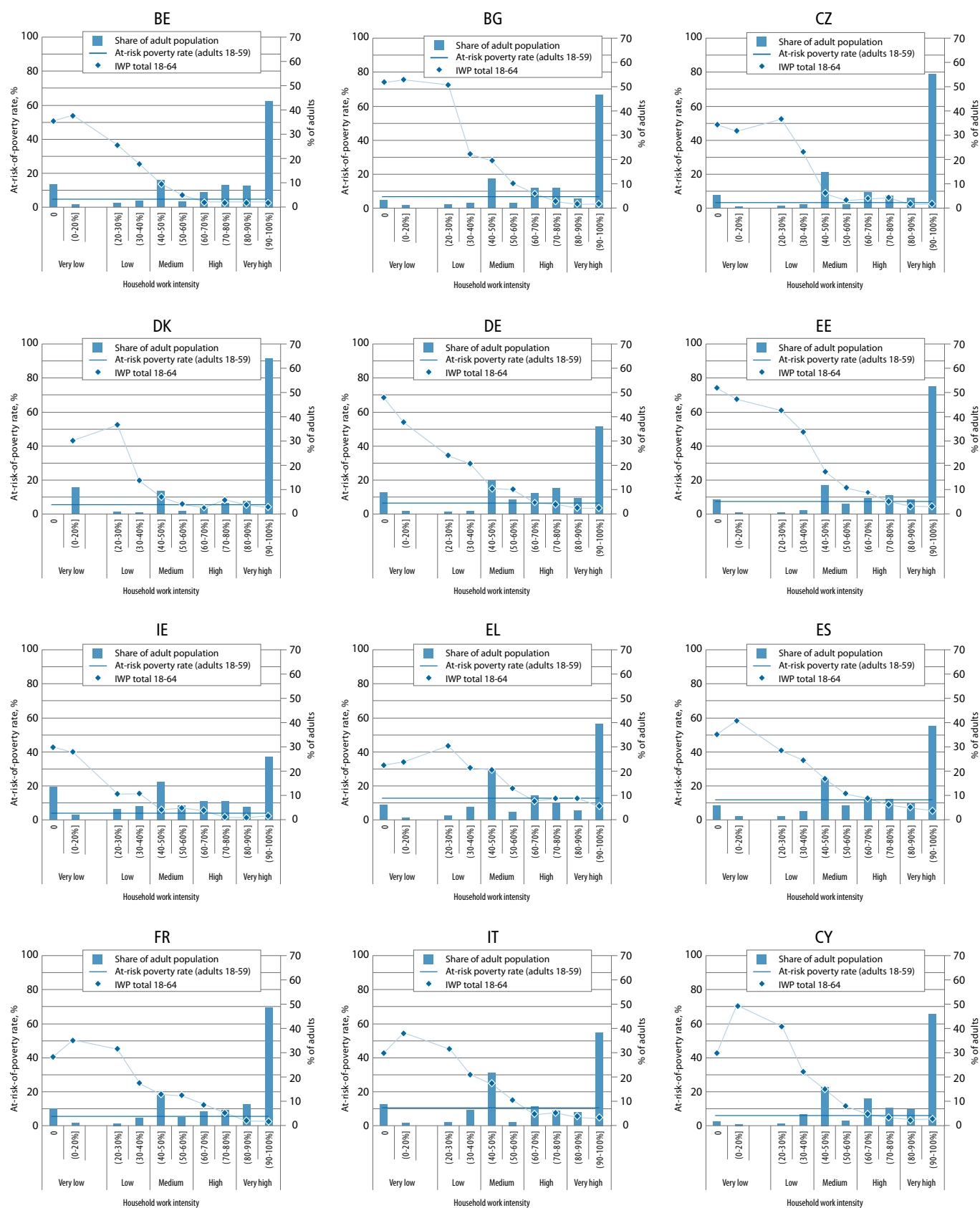


Chart 50: Poverty rate and share of adults versus household work intensity, 2009 (continued)

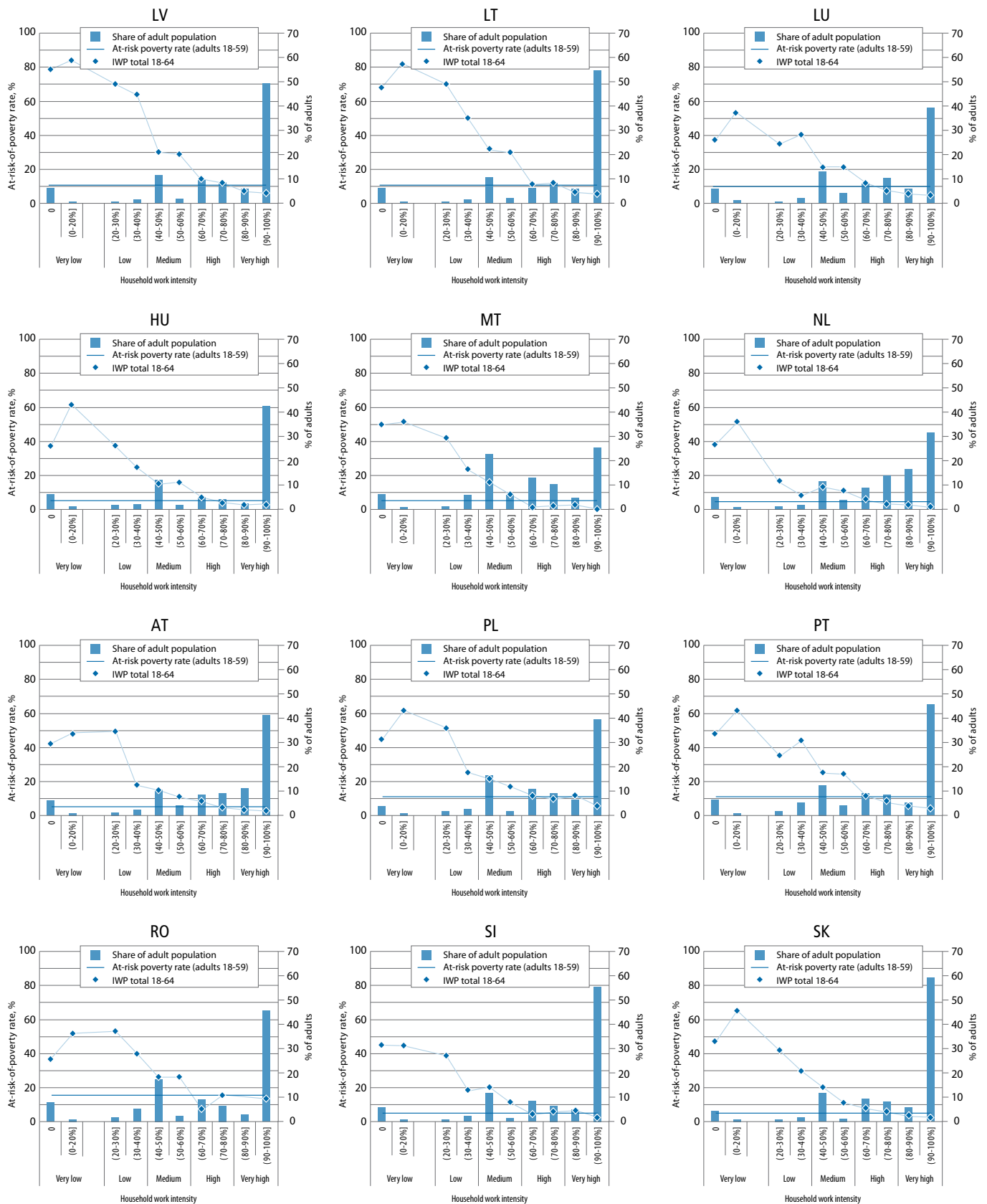
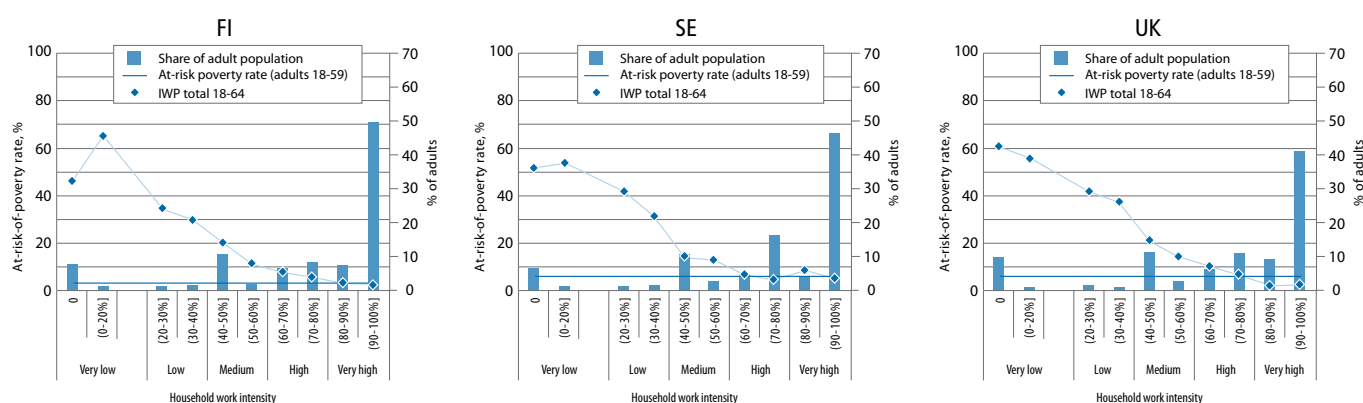


Chart 50: Poverty rate and share of adults versus household work intensity, 2009 (continued)



Source: EU SILC 2009. Note: Results for intensity (0-20%): CZ, CY unreliable/uncertain, DK extremely unreliable, EU Eurostat estimate. Intervals at very low intensity join into (0-20%) for DK.

Chart 51: Poverty rate and share of population versus household work intensity by type of households, 2009

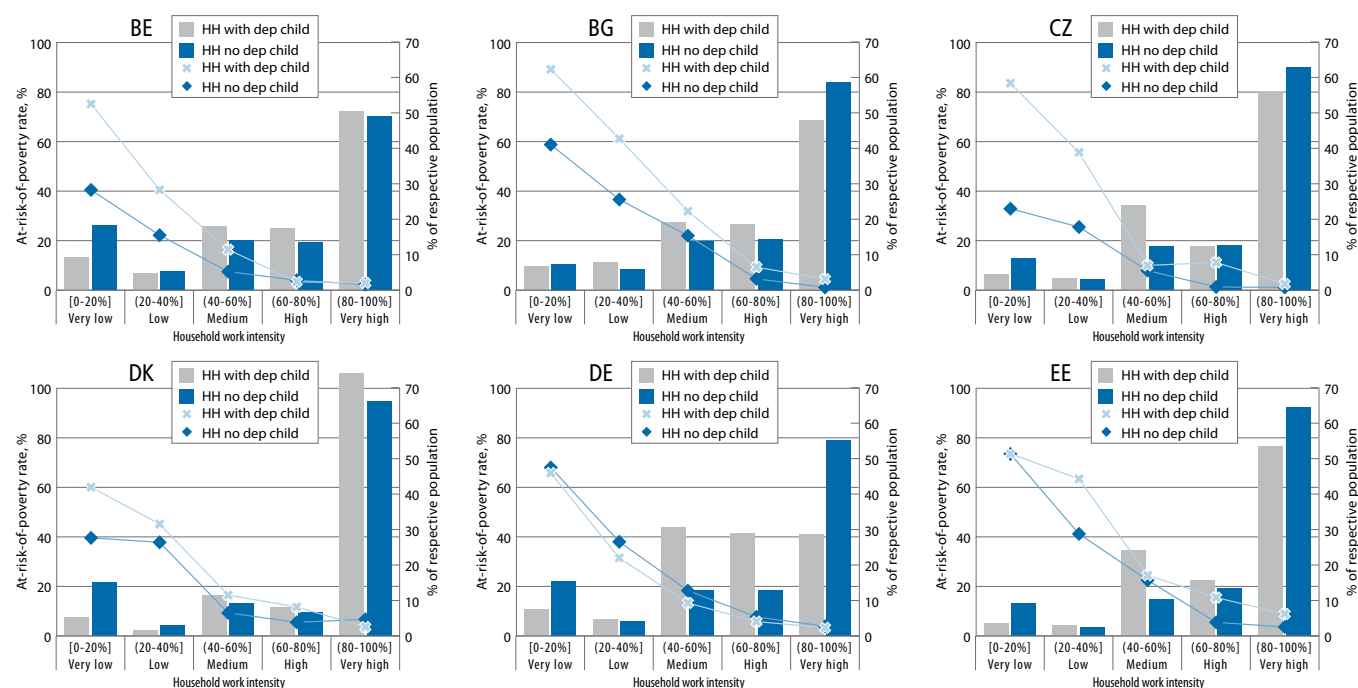


Chart 51: Poverty rate and share of population versus household work intensity by type of households, 2009

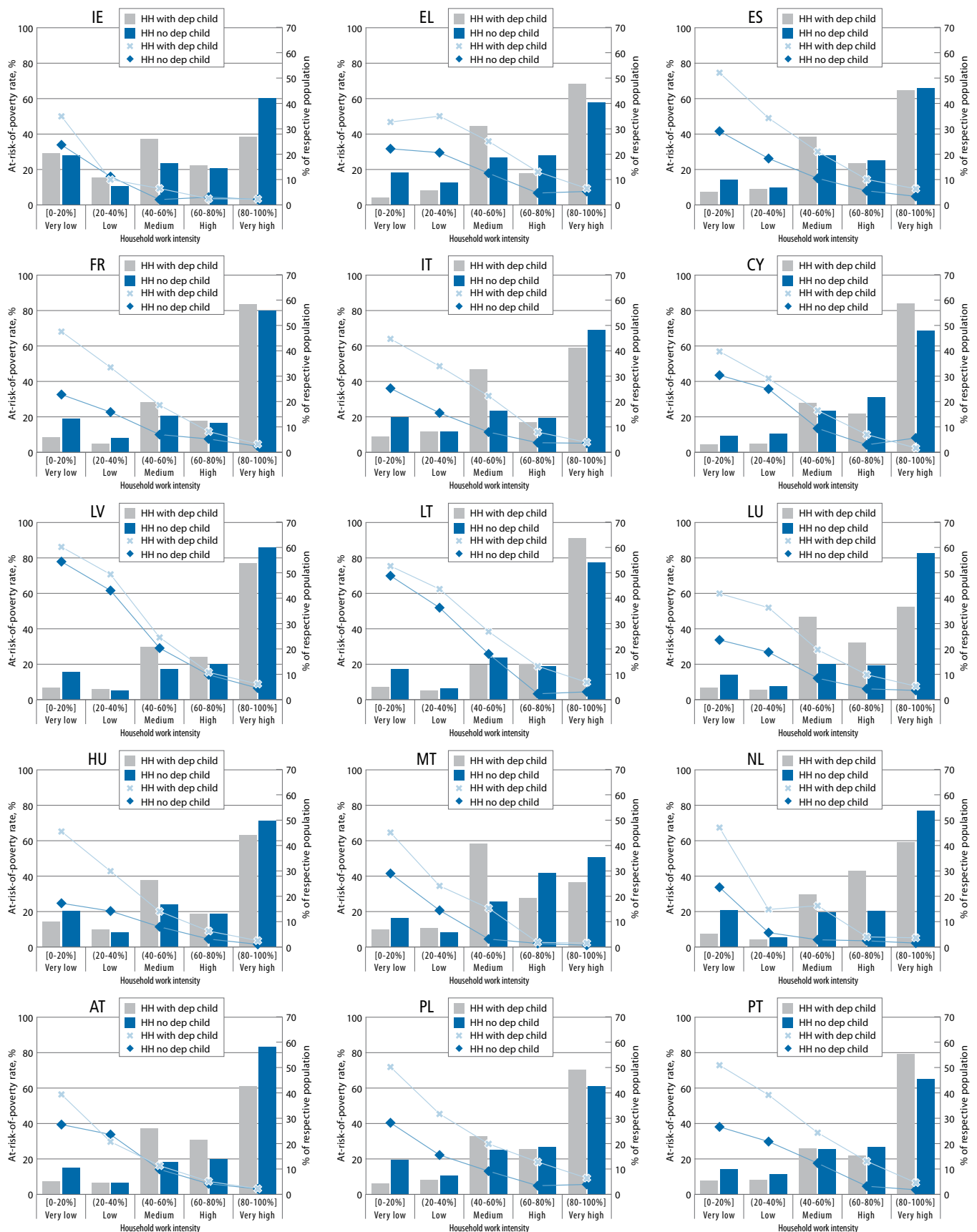
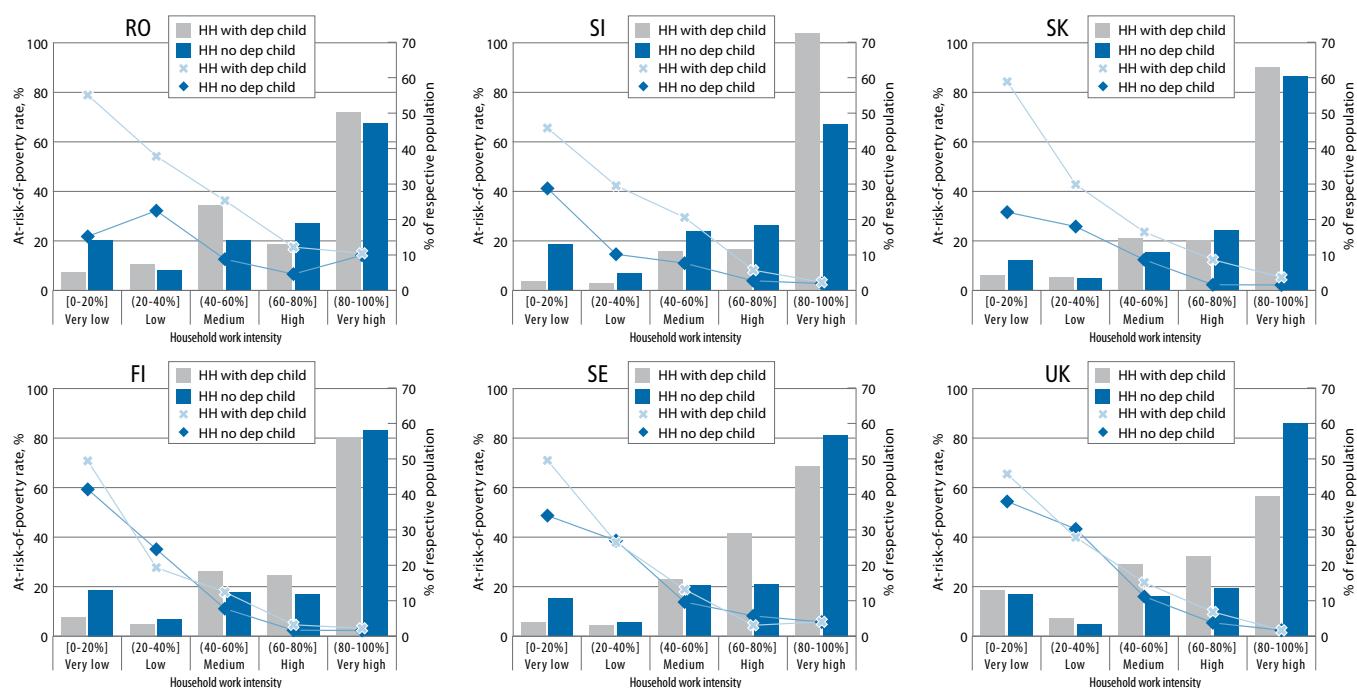


Chart 51: Poverty rate and share of population versus household work intensity by type of households, 2009



Source: Eurostat, EU SILC 2009.

Note: EU SILC 2009, income year 2008, except for UK (income year 2009) and IE (moving income period 2008-2009).

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## Active ageing

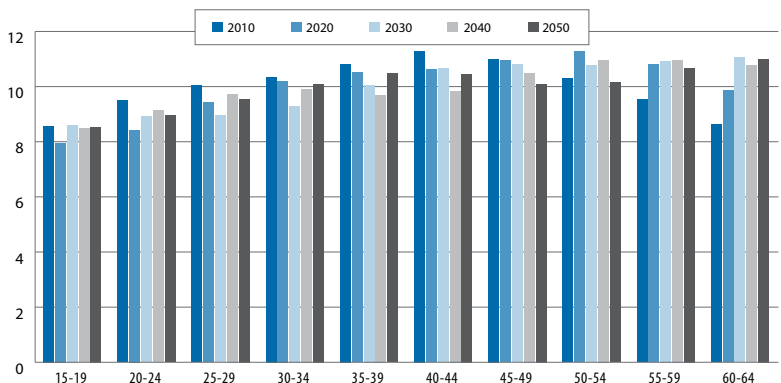
Europe will undergo a major transformation of its age structure in the coming decades. It is projected that the working age population will age significantly, with the share of 55-64 years old people rising from 18 per cent in 2010 to 21 per cent in 2020 and 22 per cent by 2050, and with the old age-dependency ratio<sup>(1)</sup> rising sharply over this period, from 0.26 in 2010, to 0.3 in 2020, and 0.5 in 2050. See Chart 1.a and 1.b.

In view of these projections it became clear in the early 2000s that labour markets had to meet the challenge of an ageing work force and increasing old-age dependency ratio by increasing the employment of older workers and delaying their exit from the labour market, which led to the so-called Stockholm and Barcelona targets<sup>(2)</sup>.

(1) i.e. the number of people older than 65 years compared to the number of people aged 15 to 64. Wöss and Türk (2011) make a distinction between the age-dependency ("demographic dependency") ratio and the economic-dependency ratio, i.e. the ratio of the pensioners and unemployed relative to the economically active persons, and argue to use the latter indicator to assess (financial) dependency, as such an indicator gives a more explicit indication than raising employment rates, with quality jobs, could help considerably in the reduction of future increase in the economic dependency ratio.

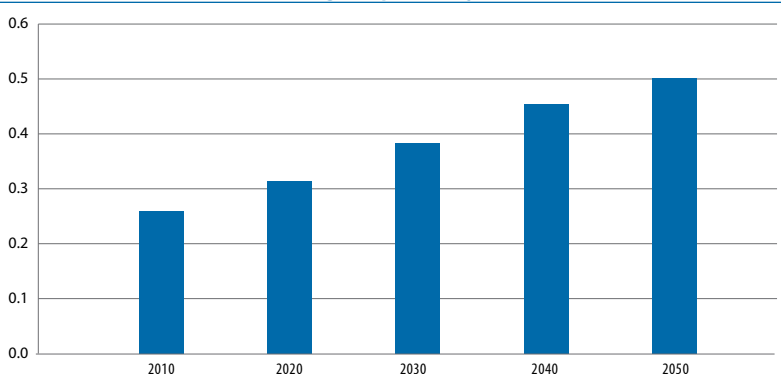
(2) The Stockholm European Council of March 2001 agreed "to set an EU target for increasing the average EU employment rate among older women and men (55-64) to 50% by 2010", the so-called 'Stockholm target'. In the same

Chart 1.a: Age groups distribution of the projected working-age population (15-64) in EU-27



Source: DG EMPL calculations based on Eurostat, Europop2010 (proj\_10c2150p)

Chart 1.b: Old-age dependency ratio in EU-27



Source: DG EMPL calculations based on Eurostat, Europop2010 (proj\_10c2150p)

Note: ratio of 65+ aged persons to 15-64 years aged persons.

vein the Barcelona European Council of March 2002 concluded that "a progressive increase of about 5 years in the effective average age at which people stop working in the European Union should be sought by 2010", the so-called 'Barcelona target'.

This chapter focuses on policies that aim to encourage older people to remain active by working longer and retiring later. Other dimensions of active ageing, such as engaging older people in volunteering, or encouraging them to lead healthy and independent lives, are not discussed, although they are addressed elsewhere at the EU level, for example in the work of the European Foundation (2011 a, b. and c.), the European Year of Volunteering (2011), and the European Innovation Partnership on Active and Healthy Ageing<sup>(3)</sup>.

This chapter begins with a brief review of the main statistical facts about the ageing work force in the European Union. Next, the labour market behaviour of older workers is analysed on the basis of micro-economic data that describes the personal and household characteristics of older workers, followed by an analysis of the impact of labour market institutions on active ageing - using DG Employment's general equilibrium Labour Market Model (LMM). The chapter concludes with an assessment of the policy implications of the findings.

Briefly summarised, the findings of this chapter underline that retirement is not the sole outcome of the interplay between institutional and financial factors, and that much deeper pull and push factors are at play. Comprehensive policy responses to promote active ageing should therefore combine the removal of financial disincentives with measures targeted towards older workers and be designed to discourage early retirement, stimulating learning to avoid skills obsolescence, adapting working conditions to the specific characteristics of older people, maintaining the overall health of older workers, and providing elderly care. Effective social dialogue and involvement of all stakeholders as well as exchanging information and good practices across borders will be crucial for implementing such policies in a way that is both economically efficient and socially acceptable.

Finally, it should be noted that this chapter also aims to underpin with sound analysis the initiatives in the context of the upcoming European Year of Active Ageing and Solidarity between Generations (in 2012)<sup>(4)</sup>.

## 1. OLDER WORKERS IN THE EUROPEAN UNION: SOME BASIC FACTS

### 1.1. The Stockholm target

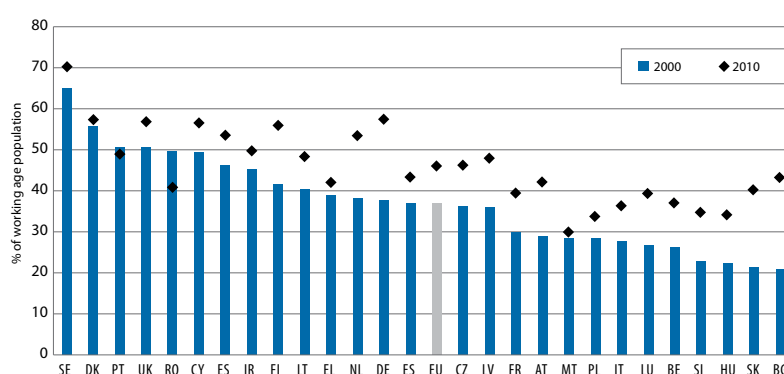
The Stockholm target was to achieve, by 2010, that at least 50 % of the EU population aged 55–64 should be in employment, as monitored by

the structural indicator 'employment rate of older workers'<sup>(5)</sup>.

Chart 2 shows that, for the EU as a whole, the employment rate of older workers increased from just under 37 % in 2000 to over 46 % in 2010. Although all Member States, except Romania and Portugal, recorded an increase in the employment rate of older workers, the rate of development varied across Member States.

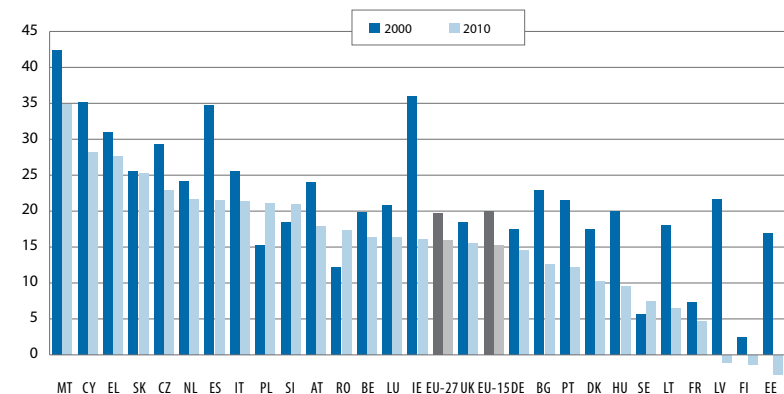
Sweden, Denmark, and the UK, which already had employment rates over 50 % in 2000, strengthened their performance. In Portugal, on the other hand, the employment rate of older workers declined somewhat, i.e. from nearly 51 % in 2000 to 49 % in 2010, and in Romania the employment rate fell sharply from 49.5 % to 41 %.

Chart 2: Employment rates for persons aged 55–64, 2000 and 2010



Source: Eurostat, EU LFS (tsdde100)

Chart 3: Employment rate of older workers: difference between men and women



Source: DG EMPL calculations based on Eurostat, EU LFS (tsdde100)

(3) See for instance <http://ec.europa.eu/active-healthy-ageing>.

(4) For more on the European Year of Active Ageing and Solidarity between Generations see <http://www.active-ageing-2012.eu>

(5) Indicator available as variable 'tsdde100' in the Eurostat database.

Cyprus, Spain, Ireland, Finland, and Germany the employment rate of older workers was higher than 50 % in 2010 – a significant increase over the rates recorded in 2000.

Malta recorded the lowest employment rate at 30 %, followed by Italy at 36.6 %. However, Italy recorded an increase in 2010 of nearly 9 percentage points (pps) compared with the rate recorded in 2000. Bulgaria and Slovakia recorded noticeable increases – 23 pps and 19 pps respectively – but still remained below the 50 % target. In the remaining Member States the participation rate of older workers increased but, as they started from a relatively low level in 2000, they fell short of the 50 % target.

Chart 3 shows noticeable changes in the relative employment rate of older male and female workers, with the gender gap in the EU decreasing by 3.5 pps to 16 %. The highest gaps were found in Malta, Cyprus, and Greece in 2010 – as had been recorded in 2000. In Ireland the gap between the employment rate of older men and women more than halved over the 2001-2010 period, followed by Estonia and Spain where it decreased by over 17 and 14.5 pps. In Latvia, Finland, and Estonia the participation rate of older women was higher than that of older men in 2010.

Charts 4.a to 4.f provide a more detailed picture of the evolution of the employment rates of older male and female workers over the last 2 decades. This shows that, in most Member States, the employment rate increased for both men and women. However, the strong upward trend in the employment rate of older female workers contrasts with the modest upward trend in the employment of the older male workers. Nevertheless, the difference between the two remains significant, with an average EU employment rate of older female workers of 38.6 % in 2010, compared to 54.6 % for older male workers.

Among the larger Member States, the steady increase of the male employment rate in Germany as of 2004 is

the most noticeable development, approaching the high employment rate recorded by the UK. A similar pattern is found with respect to older female workers, where Germany also recorded a significant increase.

In almost all the small EU-15 Member States the participation rate of older female workers increased during the decade 2000-2010. Strong increases are recorded for the Netherlands and Ireland, where the participation rate of older workers rose from 26 % in 2000 to 42 % in 2010. Austria showed a noticeable increase in the participation of older workers in 2006 and 2007. However, the Member States that already had a participation rate of 40 % or more for older workers in 2000, i.e. Denmark, Portugal, Finland, and Sweden, showed only a modest increase in the period to 2010.

Among the new Member States, the sharp increase in Bulgaria for both male and female older workers is remarkable (up from 10 % in 2000 to nearly 38 % in 2010 for older female workers, and up from 33 % to 50 % for older male workers), while the employment rate of older workers in Romania showed a sharp fall (down from 56 % in 2000 to 50 % in 2010 for males, and down from 44 % to 33 % for females).

## 1.2. The Barcelona targets

The Barcelona target is monitored by the structural indicator “the average exit age from the labour force”, i.e. the average age at which workers withdraw from the labour force and become permanently inactive<sup>(6)</sup>.

(6) The average exit age from the labour force gives the most probable age at which people (who are at least 49 years old) leave the labour force. The indicator itself is built on probabilities for individuals in each age cohort to stay active in period *t*. The probability rate is calculated on the basis of activity rates per age and year from the EU quarterly Labour Force Survey. The activity rates taken into consideration are the average over four quarterly observed rates in the year considered. The probability distribution ranges between 50 (equal or above 50

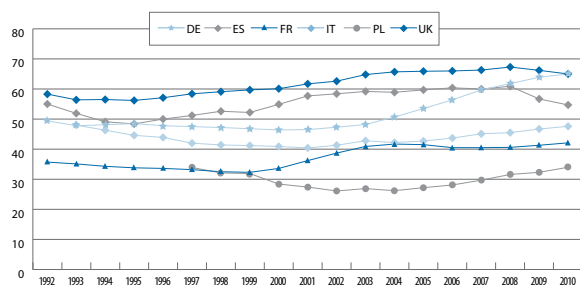
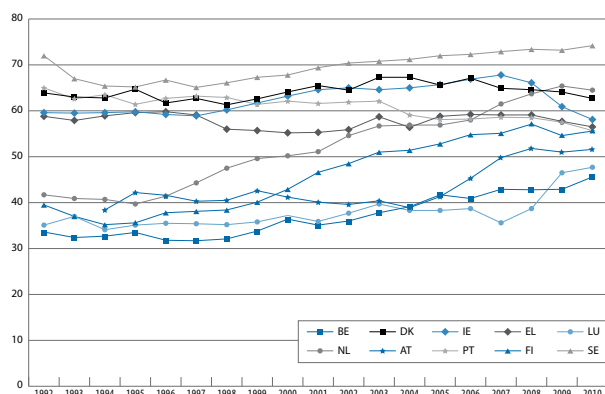
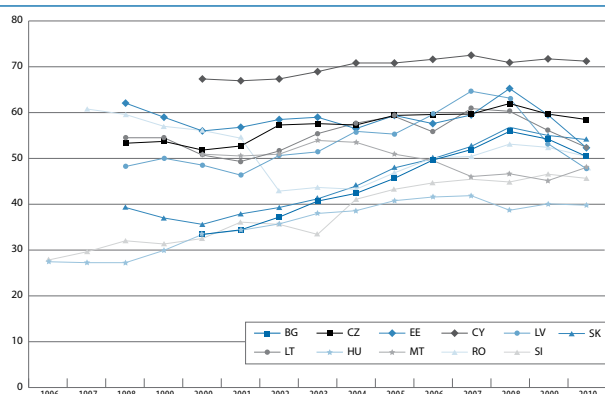
Chart 5 compares the value of this indicator in 2001 with its value in 2009 for the different Member States, where data is available. On balance, the increase in the average exit age from the total labour force has been well below the initial objective of a 5 year rise, as the exit age only rose in the EU-27 from just under 60 years in 2001 to over 61 years in 2009, and in EU-15 from over 60 to well over 61 years.

The highest average exit age is seen in Sweden at over 64 years, while the lowest is in Slovakia at under 59 years, with increases of more than (or equal to) 2 years are found in Malta, the Netherlands, Sweden, and Spain. Increases less than (or equal to) 0.5 years are found in Finland, Italy, and Cyprus.

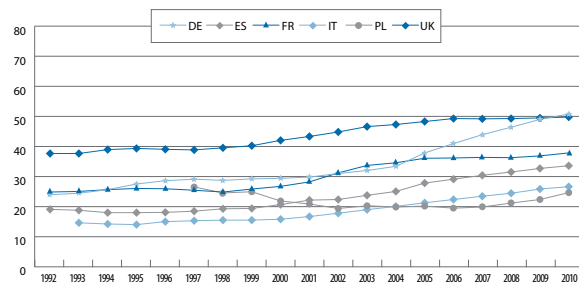
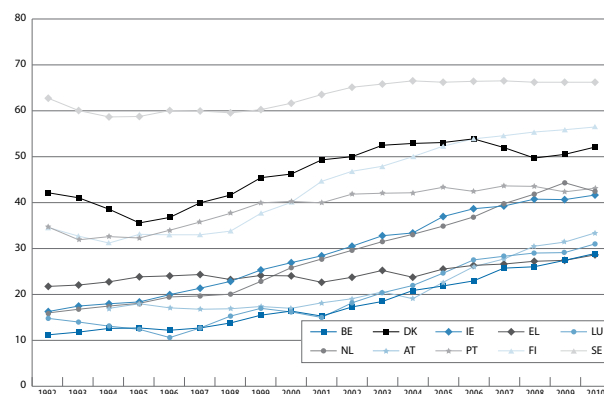
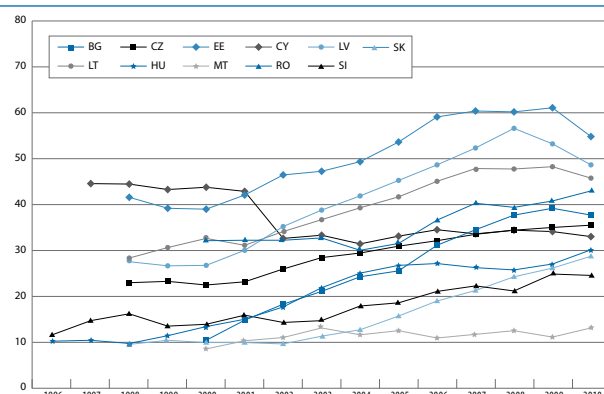
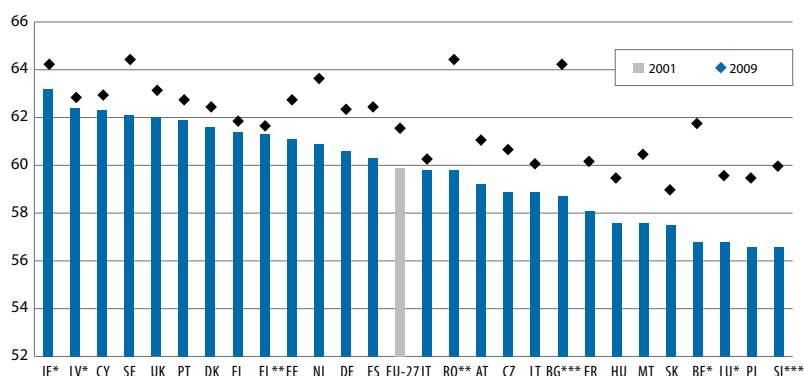
The average exit age of female workers increased from 59.4 years in 2001 to 61 years in 2009 in EU-27, while it increased from almost 60 to over 61 years in EU-15. The highest average exit age of female workers is in Sweden at 64 years, while the lowest is in Slovakia at 57.5 years.

The average exit age of male workers rose from 60.4 years in 2001 to close to 62 years in 2009 in EU-27, while it increased from 60.4 years to nearly 62 years in EU-15. In 2009, the highest average exit age of male workers is in Sweden at approaching 65 years, while the lowest is in Hungary at just over 60 years.

years of age), below which the probability of staying active is 100 %, and 70 (equal or higher than 70 years of age) where the probability of remaining active is assumed to be 0 %. Here, it should also be noted that the data quality (sample sizes) for higher ages in some countries makes it necessary to smooth artificially the decline of activity rates linearly from age 65 to age 70 so that at age 70 the active population in terms of the model becomes zero. The estimate is of the average exit age from the labour force for an active person aged between 50 and 70, regardless of whether he/she is receiving a pension or not. Therefore, the average exit age from the labour force may be higher than the average age of effective retirement into pension. For more technical details, see [http://epp.eurostat.ec.europa.eu/portal/page/portal/product\\_details/dataset?p\\_product\\_code=TSDE420](http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=TSDE420). See also Economix (2008) for an assessment of the scope and limitations of this indicator.

**Chart 4.a: Employment rate of older workers (men) in large EU Member States****Chart 4.b: Employment rate of older workers (men) in small EU-15 Member States****Chart 4.c: Employment rate of older workers (men) in small new Member States**

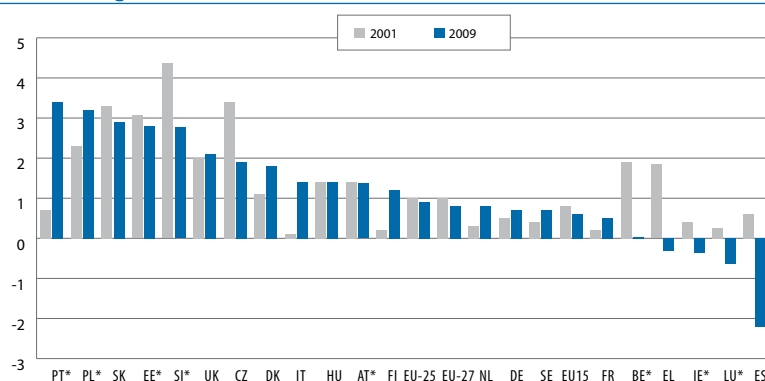
Source: Eurostat, EU LFS (tsdde100)

**Chart 4.d: Employment rate of older workers (women) in large EU Member States****Chart 4.e: Employment rate of older workers (women) in small EU-15 Member States****Chart 4.f: Employment rate of older workers (women) in small new Member States****Chart 5: Average exit age from the labour force in 2009**

Source: Eurostat, EU LFS (tsdde420)

Note: country label with\* for 2008 (or earlier) latest year, country label with \*\* 2002 for earliest observation, country label with \*\*\* for 2002 earliest year and 2006 latest year.

Chart 6: Average exit rate from the labour force: difference between men and women



Source: DG EMPL calculations based on Eurostat, EU LFS (tsdde420) and OECD

Note: Member States with a \* indicate 2009 data from OECD source.

Chart 7.a: Average effective retirement age in the large EU Member States – Men

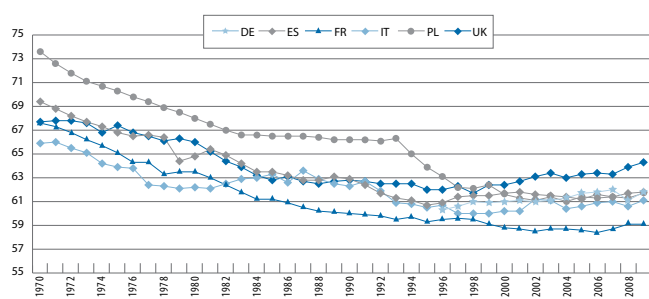


Chart 7.b: Average effective retirement age in the small EU-15 Member States – Men

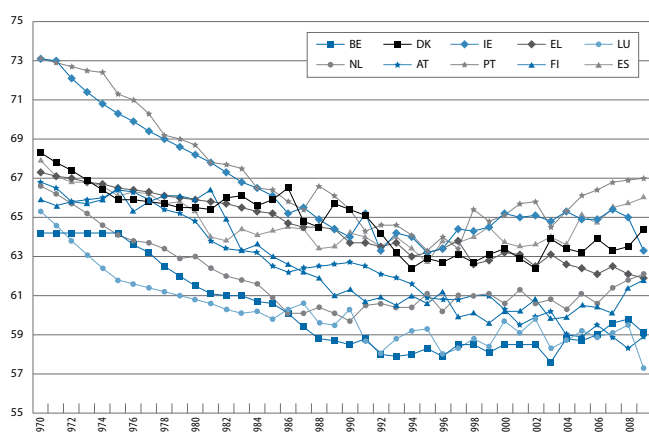


Chart 7.c: Average effective retirement age in small new Member States – Men

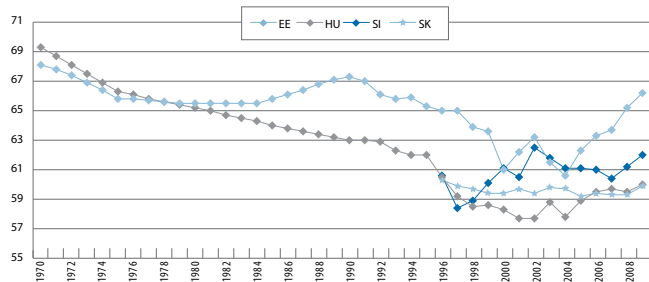


Chart 7.d: Average effective retirement age in the large EU Member States - Women

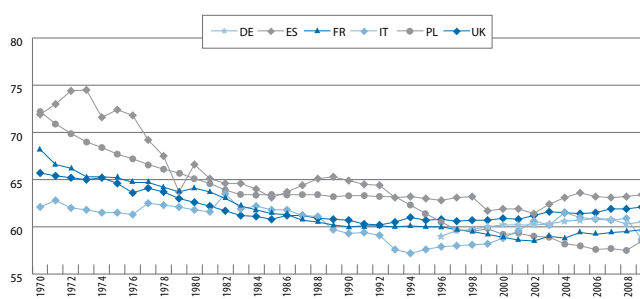


Chart 7.e: Average effective retirement age in the small EU-15 Member States – Women

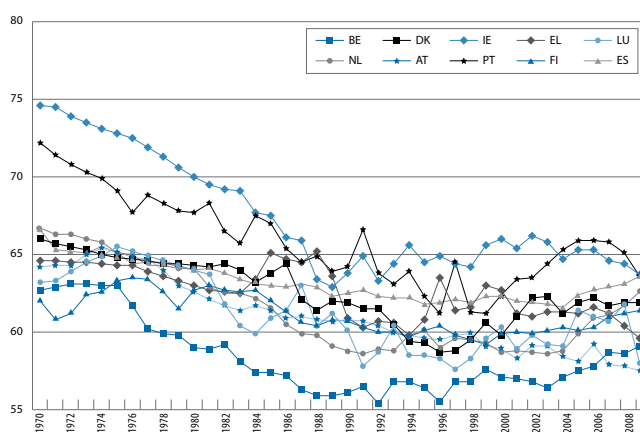
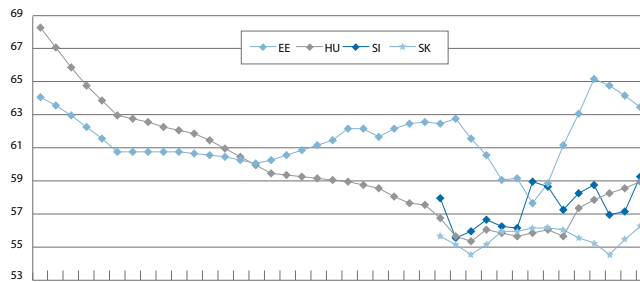


Chart 7.f: Average effective retirement age in small new Member States – Women



Source: OECD

Note: The average effective age of retirement is calculated as a weighted average of (net) withdrawals from the labour market at different ages over a 5-year period for workers initially aged 40 and over.



Chart 6<sup>(7)</sup> compares differences in average exit age by gender and Member State (where available) for 2001 and 2009. While the average exit age of male workers in 2001 was higher than the average exit age of female workers in all Member States, by 2009 four Member States recorded a higher average exit age for women than for men, namely Greece, Ireland, Luxembourg, and Spain.

Charts 7.a to 7.f place recent developments in a longer term perspective by showing the evolution of the average effective exit age over the 1970-2009 period<sup>(8)</sup>. These Charts show that in most Member States, for which data is available, the exit age declined significantly from the early seventies until the mid-eighties, after which there was a further steady decline in most Member States. At the beginning of the current century the average exit age levelled off, but with an increase for both men and women in some Member States (including the U.K., Portugal, Sweden, Denmark, Finland, the Netherlands, and Estonia).

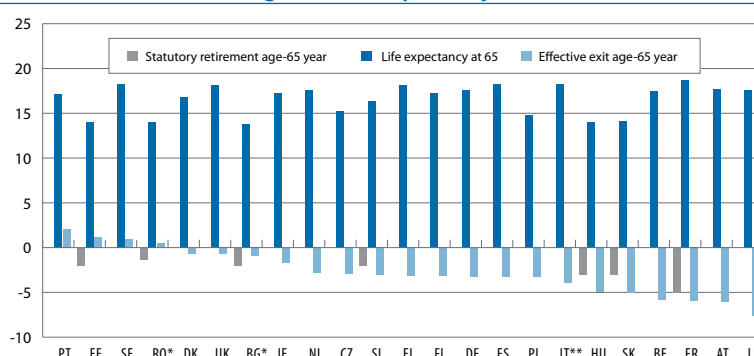
Chart 8.a and 8.b show a cross section of the average exit age, the statutory retirement age, and the expected life duration at the level of the Member States in 2009.

In most Member States the statutory retirement age for men in 2009 was 65 years, with the exception of Estonia, Romania, Bulgaria, Slovenia, Hungary, Slovakia, and France. For women, the statutory retirement age was the same, i.e. 65 years, in only 14 Member States, with the rest having a lower statutory retirement age.

(7) In Chart 6 and following charts the data reference OECD refers to OECD data available at [http://www.oecd.org/document/47/0,3343,en\\_2649\\_34291\\_39371887\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/47/0,3343,en_2649_34291_39371887_1_1_1_1,00.html)

(8) OECD data and description of the methodology available at [http://www.oecd.org/document/47/0,3343,en\\_2649\\_34291\\_39371887\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/47/0,3343,en_2649_34291_39371887_1_1_1_1,00.html). The exit age is measured here by taking the average age of exit from the labour force over a five-year period in order to mitigate the impact of cyclical variations.

Chart 8.a: Exit age and life expectancy at 65 - Men 2009

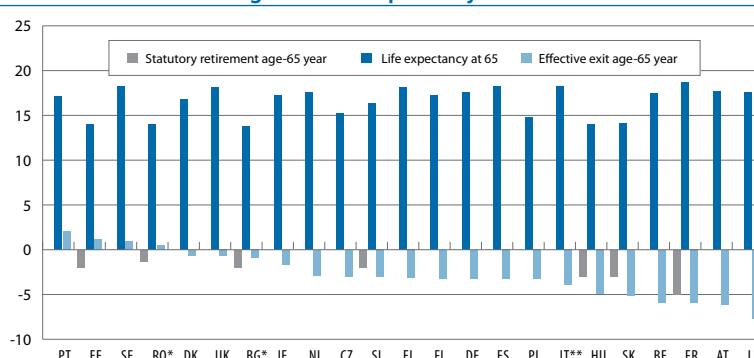


Source: DG EMPL calculations based on Eurostat (demo\_mlexpec), European Commission (2011a), and OECD

Note: Member States with a \* show 2006 exit rate.

Note: Member States with a \*\* show 2008 life expectancy.

Chart 8.b: Exit age and life expectancy at 65 - Women 2009



Source: DG EMPL calculations based on Eurostat, Population (demo\_mlexpec), European Commission (2011a), and OECD.

Note: Member States with a \* show 2006 exit rate.

Note: Member States with a \*\* show 2008 life expectancy.

#### Box 1: The average effective retirement age

Table 1.1 shows the results of a cross-sectional regression of the average effective exit age for men and women (not necessarily the age at which one starts to receive a pension income) relative to the official statutory retirement age, life expectancy, gross pension wealth, and a constant, based on data for 21 Member States for 2008<sup>1</sup>.

When the statutory retirement age increases by 1%, the effective retirement age increases by 0.5% for men, and 0.6% for women. The pension wealth does not show a significant correlation<sup>2</sup>, while the expected life duration at 65 years shows a significant negative correlation for men, which suggests that a third cause, i.e. economic wealth, is driving both life expectancy and retirement age. In other words, when people get wealthier they live longer and retire earlier.

Table 1.1: The effective retirement age in 2008

Statutory retirement age	Life expectancy	Pension Wealth	Constant	R-squared
<b>Men</b>				
0.5	-0.2	0.0	2.8	0.81
(2.8)	(-7.2)	(-0.4)	(3.8)	
<b>Women</b>				
0.6	0.1	0.0	1.2	0.41
(2.9)	(0.8)	(-1.1)	(1.4)	

Note: t-values between brackets. Values larger than 1.96 (2.58) indicate significance at 5(1)% confidence level.

- (1) The dependent and explanatory variables are in logarithm so that the point estimates can be interpreted as elasticity, i.e. the point estimate associated with a particular variable indicates the % change in the effective average exit age when the explanatory variable increase by 1%.
- (2) This insignificance was found whether net or gross pension wealth, or the net or gross replacement ratio was included in the regression (source Eurostat). A variable measuring the gain in gross pension wealth for working an extra year between the age of 60 and 65 years was also included (source OECD (2011)).

Box 1 shows some statistical evidence on the correlation between the effective retirement age and the statutory retirement age, life expectancy, and pension wealth. Notable findings are that the effective retirement age is driven by the statutory retirement age for both men and women, whereas the statistics show that when the life expectancy increases the average effective retirement age decreases. No significant correlation could be found between effective retirement age and pension wealth either.<sup>(9)</sup>

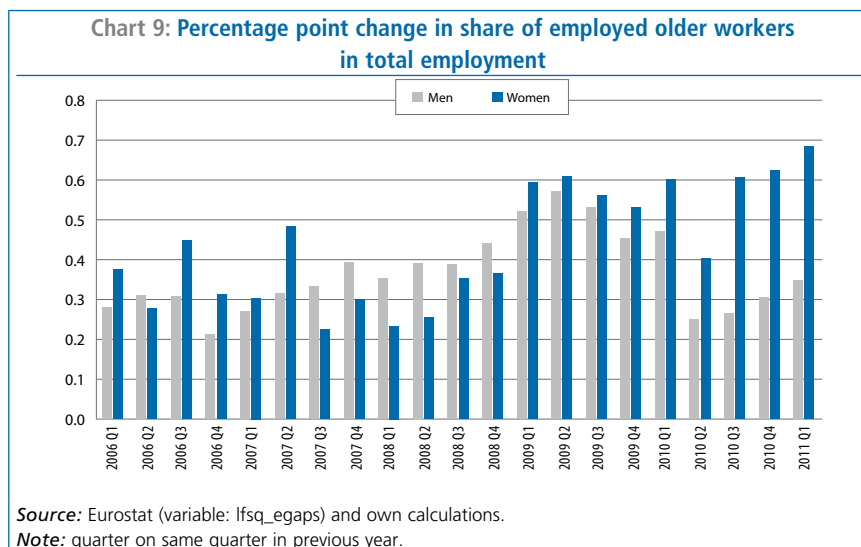
### 1.3. Employment of older workers during the recession

In the first quarter of 2006, over 12 per cent of employed male persons were older workers, compared to nearly 11 per cent of older female workers while in the first quarter of 2011, these shares had risen to 14 and 13 per cent respectively.

Chart 9 shows the evolution (in percentage point change) in the share of older workers in total employment, from the first quarter of 2006 until the first quarter of 2011 (period for which data is available). All observations reported are positive confirming that the share of older workers in total employment is increasing.

With regard to the period from the fourth quarter of 2008 until the second quarter of 2009, i.e. the period that the recent crisis gained momentum, the share of older male workers showed a notable increase, of almost 0.2 per cent points. For older female workers a similar pattern is found.

However, from the third quarter of 2009 onwards the patterns of male



and female older workers diverged somewhat. For older male workers the share declined until the second quarter of 2010, when it picked up slightly. For older women, on the other hand (and with the exception of the second quarter of 2010), the share in total female employment remained high.

Fluctuations in the share of older male workers reflect the typical contra-cyclical behaviour attributed to the relatively high hiring and firing costs of older workers compared with other age groups, with older workers being hoarded more in downturns and recruited less in upswings. Explanations for developments in the share of older women are less evident, and may lie in a combination of age cohort and cyclical effects, and that women are over-represented in sectors that are less sensitive to the business cycle, such as care and education.

## 2. AGEING CONDITIONS IN THE EU: MAIN DIMENSIONS AND A TYPOLOGY

As interest in Active Ageing policies has increased, so have policy assessments at the EU level on the basis of harmonised indicators. The Stockholm (2001) and Barcelona (2002) targets

first used the employment rate of older workers, and the average effective exit age of workers as quantitative indicators to measure the extent to which Member States were progressing towards the common targets.<sup>(10)</sup> Meanwhile, a comprehensive list of commonly agreed indicators was developed to supplement the European Employment Guidelines, which stipulate common priorities and targets for the Member States' national employment policies.<sup>(11)</sup>

Analysts in Europe have been able to use a broad array of harmonised indicators on various dimensions of older people's labour market performance and their social integration to identify shortcomings and formulate policy requirements. However, questions have been raised about what is actually being measured. Are certain policy and institutional mixes particularly influencing older people's labour market and social inclusion? Can the strategies and conditions prevailing in the different Member States, with respect to Active Ageing, be categorised by a 'typology of ageing conditions' similar to the different 'Worlds of Welfare' devised by Esping-Andersen<sup>(12)</sup> to describe different Welfare State systems?

(9) Gross pension wealth to which a person is entitled assuming a career from age 20 until age 60 is the present value of the future pensions to which workers and retirees are entitled - see Brugiavini et al. (2005) and OECD (2011). The null-hypothesis is that pension wealth should show a significant negative correlation with the effective retirement age.

(10) See sub-sections 1.1 and 1.2 of this chapter for details.

(11) For the list see Employment Committee (2009).

(12) "The Three Worlds of Welfare Capitalism" by Gøsta Esping-Andersen (1990).

This sub-chapter is devoted to the analysis of existing indicators, in order to find evidence of core policies and institutional mixes in the EU determining ageing conditions. The analysis may be seen as an update, using data from a labour market in recession, of the one undertaken for the Commission's Employment in Europe report of 2007<sup>(13)</sup> which presented a Principal Component and Cluster Analysis on Active Ageing in the EU Member States. However, the set of input indicators used here is different from those employed earlier. It has an input of 15 different indicators encompassing older people's labour market performance, institutional details, and indicators of social inclusion (relative income, inequality, poverty, wage relation).

The analysis is split in two parts:

1. A Principal Component Analysis to identify the broad structure of a data set comprising 15 quantitative indicators on Active Ageing

2. A Cluster Analysis to identify similarities and differences between Member States, based on the principal components of ageing conditions

## 2.1. The main dimensions of Active Ageing: A Principal Component Analysis

Principal Component Analysis (PCA) or "explorative Factor Analysis" is a multivariate technique designed to identify a core structure in a broader dataset by shaping groups of variables that are correlated, and separating them from non-correlated groups.<sup>(14)</sup> If there are stronger correlations between indicators on employment and social inclusion, one could conclude that there are common driving forces or some "common origins" to these variables so that merging them into "factors" would make sense. Ideally, the analysis would reduce a multivariate data set of partly correlated indicators to a few orthogo-

nal (statistically independent or uncorrelated) factors which - despite the "squeeze" - still explain a significant part of the original indicator's variability (the variance across countries).<sup>(15)</sup> The original list of indicators in the PCA is as follows:

The original data matrix for the analysis consists of 28 observations (countries) for each of the 15 variables. The first six indicators capture the labour market situation of older people, while the share of part-time (indicator 5) and temporary workers (6) provides some relevant information on their institutional circumstances. Analysis showed that the inclusion of the OECD's Employment Protection Legislation (EPL) indicator did not add much explanatory power to the model. The Duration of Working Life index (4) measures the duration of working life at the age of 20 years.<sup>(16)</sup>

Variables covering the notion of "knowledge-based economy" are included, taking account of the

Table 1: Indicators included in the PCA (2009/10 or most recent) for 27 Member States plus Norway

Indicator No	Mnemonic	Description of Indicator	Data Source
1	ER	Older people's employment rate (55-64)	EU-LFS 2010
2	AvExitAge	Average Age of Exit from the Labour Force	based on EU-LFS 2010, see Subsection 1.2 of this chapter on the Barcelona targets
3	UR	Unemployment rate (55-64)	EU-LFS 2010
4	DWL	Duration of Working Life indicator	.. measuring DWL at the age of 20, see Economix (2008)
5	Par-time5564	Part-time as % of total employment (55-64)	EU-LFS 2010
6	Temp1564	Temporary employment as % of total employment (15-64)	EU-LFS 2010
7	LLL	Life Long Learning indicator	EU-LFS 2010
8	EDUC12	Education: Share of people holding at least upper secondary degree (among 55-64), i.e., ISCED 3-6	EU-LFS 2010
9	PensExp	Age related government expenditure: Pensions as % of GDP	2009 Ageing Report, p. 29 (Ageing Working Group)
10	ImpTax	Implicit Tax Rate on Labour. Taxes and social contribution levied on employed labour divided by total compensation	2008 National Accounts
11	PovR	At-risk-of-poverty rate of older people	EU-SILC 2009
12	RelInc	Median relative income of elderly people (60+ relative to 0-59)	EU-SILC 2009
13	Ineq	Inequality: S80/S20 (mean equivalised) income ratio among older people	EU-SILC 2009
14	Seniority	Wage seniority: average mean hourly wage per employee 50+ relative to all employees	Calculated from 2006 Structural Earnings Survey
15	DDR_10	2010 demographic dependency ratio (65+ / 15-64)	2008 Europop convergence Scenario, Eurostat

(13) European Commission (2007), Section 2.6.

(14) Backhaus et al. (2008), Section 7.1 and European Commission (2006), especially Box 1 on p. 109.

(15) Factor analysis is often used before running multivariate regressions: the independent variables in such regressions are often correlated - violating one of the core assumptions of Ordinary-Least-Square Regressions, namely uncorrelated explanatory variables. Using (ideally uncorrelated) factors instead of a large number of correlated variables will hence reduce the problem of multi-collinearity.

(16) See Economix (2008).

**Table 2: Factor loadings in the range [-1,+1] for four principal components, extracted from 15 indicators on 27 Member States plus Norway**

Indicator	Rotated Component Matrix Extracted factor				Indicator's Communality
	1	2	3	4	
ER	.929		-.198		0.91
AvExitAge	.813	.212	.235	-.191	0.80
DWL	.884	.298			0.88
UR		.770	-.228		0.65
Part-time5564	.586	-.566			0.67
Temp1564		-.172	.527	.323	0.42
LLL	.663	-.349	-.203	.188	0.64
EDUC12			-.849	.124	0.74
PensExp	-.290	-.320	.340	.783	0.92
ImplTax		-.347	-.257	.832	0.88
PovR	.177	.866	.113	-.145	0.82
RelInc	-.231	-.749	.242	.234	0.73
Ineq		.548	.695		0.80
Seniority	-.119	-.427	.796	.124	0.85
DDR_10	.144	.165	.151	.861	0.81
Factors' Eigenvalue	3.32	3.25	2.58	2.35	Sum:11.5

On top of the loadings of variable *x* (row) on factor *y* (column), Table 2 shows the variables' communalities in its last column as well as the factors' Eigenvalue in its last row. To some extent, these measure the quality of the extraction. The Eigenvalue provides important information when it comes to determining the number of factors to be extracted (see Box 2).

With one being the standardised variance of each of the 15 variables, this would result in 15 being the sum of the original indicators' standardised overall variation. The sum over all 15 communalities (equalling the sum over all four Eigenvalues) is only 11.5. That is, using the extraction result displayed in Table 2, the four factors manage to explain 11.5/15 (77 %) of the 15 original indicator's cross-country variability. Hence, the reduction of dimensions from 15 indicators to only four factors involves a loss of 23 % of the explanatory power of all 15 indicators. This is an acceptable albeit not optimal outcome – an issue discussed more in depth in Annex 4.

A key issue is to find a reasonable interpretation of the four principal components of ageing conditions extracted from the dataset. We use the factor loadings displayed in Table 2: where there is a strong positive (negative) loading of indicator *x* to factor *y*, there is evidence that a high (low)

indicators on Life Long Learning (7) and educational attainment (8). The pension expenditure variable (9) and the implicit tax rate on labour (10) provide some indication of the generosity of pension systems and the cost that the welfare state imposes, in terms of the general tax burden on labour.

Variables 11 to 13 cover the dimensions of poverty, inequality, and income position of the elderly while 'seniority' (14) is an index for the wage premium paid for age. Current demographic dependency is also considered (15). All variables except DWL (for logical reasons) and Temp1564 (for data availability reasons) refer to older people.

Starting from the vector of indicators, displayed in Table 1, the extraction of principal components is done in a way that reduces the relations between the original indicators (measured in terms of the correlation between them), in order to arrive at a low number of principal components (factors). The technique is therefore called "reduction of dimensions". The factors are extracted in such a way as to maximise the sum of their correlations with the original variables. This correlation is called factor loading (of original indicator *x*

to factor *y*). Annex 3 briefly describes the procedure.

Table 2 shows the resulting component matrix. Four factors (components) were extracted from the original 15-indicator dataset with the matrix showing the factor loadings of each resulting factor to each of the 15 initial indicators. Loadings move in a logical range from -1 (perfect negative correlation of indicator *x* with factor *y*) to +1 (perfect positive correlation). Very weak loadings between -.1 to +.1 will be suppressed. Stronger correlations are highlighted.

#### Box 2: Communality and Eigenvalue

The **communality** of variable *x* is the sum of the squared loadings over all four factors (sum over the row in Table 2). It tells us to what extent the total of all four factors contribute to explaining indicator *x*'s observed variation across countries. Communality equal to one would mean full explanation. For example, the four factors explain 91 % of cross-country differences in employment rates, but only 42 % of the share of temporary workers' variability.

The **Eigenvalue** of a factor *y* is the sum of the squared loadings over all 15 variables to factor *y* (sum over the column in Table 2). It measures to what extent factor *y* contributes to explaining the observed variability (country differences) of all 15 indicators. Given that the standardised variance of an indicator is equal to one, an Eigenvalue equal to one would mean that the respective factor extracted from the set of variables would not explain more variance than one original variable itself. Hence, according to the Kaiser-criterion, the extraction would continue only as long as the marginal factor's Eigenvalue is still greater than one (Backhaus et al. (2008), p. 353). This is still the case for the fourth extracted factor, but not for the fifth - hence extraction stops after four factors. Vis-à-vis their Eigenvalues, factors 1 and 2 explain more of the overall variability than factors 3 and 4.

score for factor y goes in line with a high score for indicator x.

- **Factor 1** shows strong positive correlation between the employment rate of older workers, the Average Labour Market Exit Age, the duration-of-working-life indicator and loads (fairly) strongly to the share of part-time work amongst older workers and the Life-Long-Learning intensity. One could conclude that this factor reflects the extent to which Member States manage to achieve the activation of older people on the labour market through a flexible working environment (including opportunities to work part-time) and life-long employability. Hence, one could label this dimension a **“supportive active system”** consistent with the classification used in the Employment in Europe 2007 report.
- **Factor 2** is strongly positive on older people’s unemployment and correlates well with increasing poverty risk, low elderly income (relative to people younger than 60) and high income inequality amongst older people. Moreover, it correlates negatively with activity through part-time work, suggesting that full time work is needed to make a living. This combination of factors suggests a social security system with **“low safety nets”**.
- **Factor 3** could suggest that labour markets are segmented, to a certain extent, from older people’s perspective. There is quite a high correlation between the share of temporary workers and a high level of older people having less than upper secondary educational qualifications. On top of that, the insider-outsider phenomenon shows strongly in terms of high income inequality among the elderly and a strong seniority wage premium. This factor is being labelled **“Labour market segmentation”**.
- **Factor 4** responds highly to the labour tax burden, pension expenditure and demographic

**Table 3: A five-cluster typology of Member States based on the principal components of ageing conditions**

		Factor 1: Supportive Active System	Factor 2: Low safety nets ("-" means favourable)	Factor 3: Labour Market segmentation ("-" means favourable)	Factor 4: Tax Distortions
Cluster 1:	DE, FI, SE, DK, NO, NL, UK (High Active Ageing)	+	(-)	(-)	+/-
Cluster 2:	BE, AT, LU, SK, CZ, HU, PL, SL, MT (Intermediate)	-	-	+/-	+/-
Cluster 3:	FR, IT, EL, ES, PT (Mediterranean)	(-)	(+)	+	+
Cluster 4:	BG, LT, LV, EE (Developing welfare states)	+/-	+	-	0
Cluster 5:	IE, RO, CY (Low dependency)	+	+/-	+	-

“+” or “-” denote above (below) average value in the respective factor. Brackets indicate that the majority of country values are above or below, resp. “+/-” stands for an uneven distribution of values within the group and “0” is the label for all country values being close around the 28-average.

dependency, with permissive exit rules. It suggests a social security system based on income transfers and high social security contributions. We call this, as in the 2007 report, **“Tax distortions”**.

## 2.2. Member State taxonomy of ageing conditions: A Cluster Analysis

This section seeks to find evidence for a typology of ageing conditions by trying to group 27 Member States (and Norway) into clusters, based on the countries’ performance with respect to these four core ageing conditions. For our Cluster Analysis (CA) we use hierarchical clustering which (referring to our exercise) seeks to build a hierarchy of groups (clusters, partitions) of countries based on the degree of similarity with reference to specified ageing characteristics. See Annex 5 for a short explanation of the procedure.<sup>(17)</sup>

The analysis leaves us with a range of possible solutions for the clustering. Only the five-cluster solution is displayed below. It results in the following typology:

**Cluster 1 [High Active Ageing]** includes the Nordic states, Germany, the Netherlands, and the UK. They tend to score favourably on activity (1st fac-

tor) and to some extent on inclusion (2nd factor) though only Norway and the Netherlands deviate significantly from the overall average low safety net factor. Countries in Cluster 1 are characterised by a relatively low degree of labour market segmentation (3rd factor) - though all of them are relatively close to the overall average in terms of segmentation.

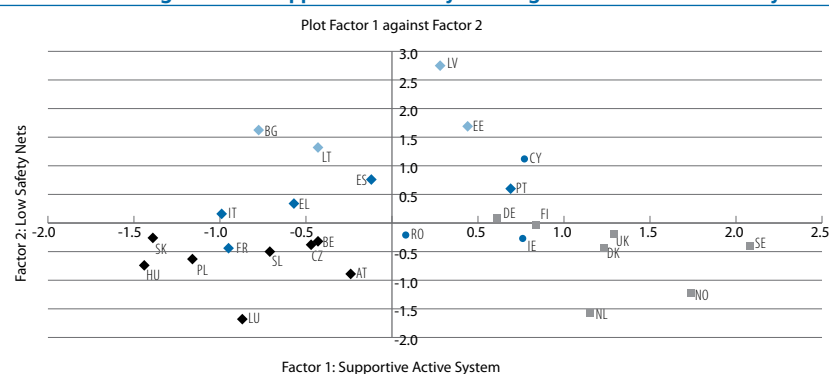
**Cluster 2 [Intermediate Welfare States]** includes Belgium, Austria, and Luxembourg, but also some EU-10 countries: Slovakia, the Czech Republic, Hungary, Poland, Slovenia, and Malta. They are characterised by below-average scores with respect to the low safety net factor (2nd factor, with LU and AT the lowest scores, i.e., most favourable). This may be surprising for some EU-10 countries but it is due to the fact that countries like HU, SK, or CZ are above average in terms of (lower) elderly poverty rates and inequality, while countries like SL, CZ, MT, and PL have below-average unemployment rates for older people. On the other hand, Cluster-2-countries perform less favourably in terms of knowledge-based activation (1st factor, particularly the EU-10-countries).

**Cluster 3 [Mediterranean]** includes France, Italy, Greece, Spain, and Portugal. Their labour markets tend to be segmented from older people’s perspective (3rd factor); these coun-

(17) Backhaus et al. (2008), Chapter 8.

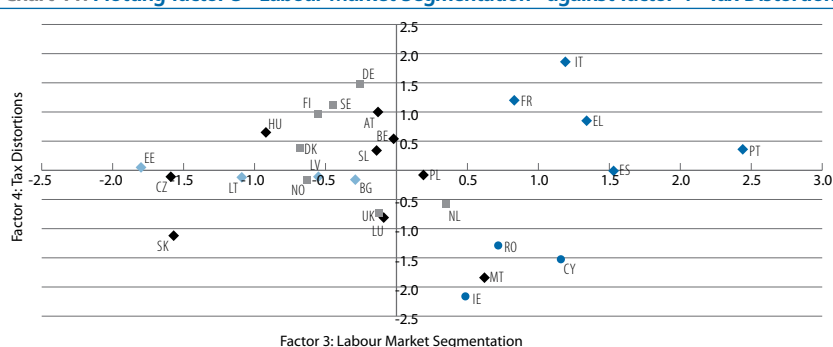


Chart 10: Plotting factor 1 “Supportive Active System” against factor 2 “Low Safety Nets”



A certain backlog in **building an inclusive society** for older people seems to be the main problem in the Baltic States plus Bulgaria. Old-age poverty and inequality rates are far above EU average. Older people's relative income position is very low due to low replacement rates. Hence, old-age poverty reduction, tackling inequalities, and fighting unemployment should be of particular policy concern in this cluster.

Chart 11: Plotting factor 3 “Labour Market Segmentation” against factor 4 “Tax Distortion”



**Activating older people** for the labour market should be a focus for the mixed cluster countries (the biggest EU-10 countries plus MT, AT, LU, and BE) which tend to show low older peoples' employment rates and low exit ages.

The Mediterranean Member States also show a certain activation backlog. One of the major obstacles to a more favourable labour market performance of older people in this cluster is **labour market segmentation**. It is favoured by a high share of low-educated older people, who may not bring the necessary skills, but could also be a result of high seniority wage premiums excluding older people on the cost-side. For ES and PT, most importantly, dual labour markets result from a far-above-average share of (loosely protected) temporary workers which feeds into high unemployment. On top of that, the Mediterranean cluster is characterised by a certain over-reliance on cost-intensive social security feeding into high participation taxes. This may also keep, relatively, many older people from being active.

The Activation cluster (including the Nordic States, DE, NL, and UK) all perform favourably in terms of activating older people. Unlike the UK and NL, the Nordic States and DE combine successful activation with higher social security expenditure levels (factor 4). In the NL, on the other hand, it could be the work organisation strongly favouring part-time work which may contribute to high older peoples' labour market participation

tries are characterised by high reliance on pension expenditure, combined with high taxes and strong dependency (4th factor). The low safety net (2nd factor) is about average except for ES and PT which perform less favourably.

**Cluster 4 [Developing Welfare States]** includes the Baltic States and Bulgaria which tend to have less segmented labour markets for older workers (3rd factor) but definitely have problems in terms of their “safety net” score (2nd factor).

**Cluster 5 [Low dependency]** includes only Ireland, Romania, and Cyprus. They have particularly low dependency and (pensions) expenditure scores, partly driven by a (still) favourable demographic structure (4th factor) combined with above-average labour market segmentation (3rd factor) for older people. With average exit age above the EU-27 average, these countries also perform favourably in terms of activation (1st factor, with RO being only average).

Charts 10 and 11 show how the Member States position themselves within the portfolio defined by the four principal components (factors) of ageing conditions. A standardised factor value of zero indicates sample average.

The charts show that the definition of groups is relatively precise for the first two factors (which explains most of the overall original indicator's variability following their *Eigenvalue* as shown in Table 2 above), but less so for factors 3 and 4 where the frontiers are more blurred, especially for dependency factor 4 with respect to Cluster 1 (BE, LU, AT, plus some EU-10) and Cluster 2 (Nordic States plus UK, DE, and NL) where the grouping was less successful. However, apart from the mixed Cluster 2, all clusters show a clear pattern which is in line with expectation.

Following the analysis, the following policy-relevant conclusions could be drawn:

(part-time share for older people in the NL is more than double the EU average). In the UK, a high degree of supply-side labour market flexibility with by far the loosest employment protection would help to pull older people onto the labour market (see Section 5.1.5 above).

The combined PCA/CA analysis is useful to identify the main dimensions, in terms of the living and working conditions of older people, and to help identify positive policy results as well as policy needs or deficits **relative to**

**other countries.** In terms of the analysis in this sub-chapter, however, it should be noted that all variables represent a snapshot in time, with most of the observations made in 2009 and 2010, and it is probable that the crisis has aggravated negative scores in a number of countries. Hence it will be interesting to update the analysis at a later stage to see whether the main dimensions of Active Ageing have to be re-defined, and what would be the typology of ageing conditions with respect to these new principal dimensions.

### 3. PERSONAL AND HOUSEHOLD CHARACTERISTICS ARE IMPORTANT DETERMINANTS OF RETIREMENT

The previous section presented stylised facts regarding the labour market behaviour of older workers in the EU. In this and subsequent sections these facts will be analysed and the policy implications of encouraging older people to remain active by

#### Box 3: Voluntary and involuntary retirement

Voluntary retirement can be formally defined as the outcome of an inter-temporal utility maximisation problem by the older worker who maximises his/her inter-temporal flow of labour income and pension benefits, conditional upon other factors that influence the retirement decision such as job quality, health, leisure, household commitments, etc. Retirement is then chosen voluntarily when leisure is deemed to be more attractive than work. For instance, Blöndal and Scarpetta (1998) and Duval (2003) find cross-country evidence that supports the hypothesis that more generous early retirement regulations are a significant pull factor to early retirement.

Involuntary retirement refers to early retirement beyond the choice of the older worker, i.e. it is forced upon older workers, as in the case of restructuring of an enterprise (at the sectoral level such events occurred, e.g. in the coal and steel sector in some Member States, in the past; at the national level such events occurred, e.g. in some New Member States that made the transition to a market economy, in the past.) See Desmet et al. (2005).

The distinction between voluntary (pull) and involuntary (push) is not always easy to make. For instance, Hutchens (1999) argues that favourable early retirement provisions can pull workers to earlier retirement. But they can also give enterprises an incentive to push older workers into early retirement, in order to meet restructuring needs in what they would see as a cost-efficient way.

#### Box 4: A micro-econometric analysis

The empirical results in this section are obtained from studies ISG and RWI (2010) and RWI (2011) which were carried out on behalf of the European Commission under the PROGRESS programme.

The estimates show the responses of individuals towards labour market participation, hours worked, employment type, labour market transitions (status and wage), unemployment, job search, and training.

The behavioural equations are specified and estimated in terms of individual characteristics (including gender, age, education), household characteristics (including, marital state, number of children and older persons), and country- (and time-) specific conditions (including labour market institutions and the business cycle).

The former characteristics are captured by the EU-SILC (covering the 2004-2008 period) and EU-LFS (covering the 1998-2008 period) micro data; the latter are captured by country and time fixed effects, i.e. a dummy that is equal to 1 if data from a particular country is considered, and equal to zero if another country is considered.

The country-fixed effects indicate that otherwise equal individuals in terms of age, education, gender, and household composition will be more likely to supply labour in one country than in another due to country-specific determinants of labour supply. The interpretation of the country-fixed effects can be further refined by correlating them to indicators measuring labour market institutions and the macro-economic environment (e.g. the unemployment rate).

Appropriate econometric techniques (including probit, tobit, multi-nominal logit, ordered multi-nominal logit...) have been used to obtain consistent and efficient point estimates.

The reported point estimates indicate values relative to a reference group, e.g. men relative to women, high skilled relative to low skilled.

Annex 1 shows how the point estimates in the following tables have to be interpreted.



Table 4: Labour market behaviour of older workers: participation, hours worked, Part-time employment

	Participation		Hours worked		Part-time employment	
	Women	Men	Women	Men	Women	Men
Individual characteristics						
Age 15-24	<b>-0.31</b>	<b>-0.30</b>	<b>-20.35</b>	<b>-21.25</b>	0.03	<b>0.07</b>
Age 25-54	Reference category		Reference category		Reference category	
Age 55-64	<b>-0.32</b>	<b>-0.38</b>	<b>-21.68</b>	<b>-20.76</b>	<b>0.15</b>	<b>0.07</b>
ISCED 0-2	Reference category		Reference category		Reference category	
ISCED 3-4	<b>0.20</b>	<b>0.11</b>	<b>13.41</b>	<b>7.02</b>	<b>-0.06</b>	<b>-0.01</b>
ISCED 5-6	<b>0.32</b>	<b>0.16</b>	<b>20.83</b>	9.76	<b>-0.14</b>	-0.01
Household characteristics						
Number of elderly persons	-0.06	<b>0.03</b>	<b>-5.34</b>	0.91	-0.02	0.00
No spouse in household	Reference category		Reference category		Reference category	
Inactive/unemployed spouse in household	<b>-0.10</b>	<b>0.07</b>	<b>-6.55</b>	<b>5.17</b>	<b>0.03</b>	<b>-0.03</b>
Employed spouse in household	<b>0.10</b>	<b>0.21</b>	<b>4.68</b>	<b>12.02</b>	<b>0.05</b>	<b>-0.04</b>
Country-fixed effects						
Unemployment rate	<b>-0.01</b>	<b>-0.02</b>			<b>-0.02</b>	<b>-0.02</b>
Pensions as share of GDP	-0.00	0.00			0.00	0.02
Mean retirement age	<b>0.02</b>	<b>0.03</b>			<b>0.03</b>	0.02
Employment protection	0.00	0.02			0.02	-0.02

Source : Table A.2.15 and A.2.17 of RWI (2010).

Note: Participation and parttime employment: Probit estimation; Hours worked: Tobit estimation. Statistically significant point estimates (5 per cent level) are in bold figures. See Annex 1 for an interpretation of the coefficients.

Note: The point estimates listed under the "country-fixed effects" heading measure the correlation between the respective variables and the country-fixed effects. As such, they can not be interpreted in quantitative terms of changes in probability, they only give a qualitative indication of the direction in which the probabilities are affected (i.e. higher or lower probability).

working longer and retiring later will be addressed. The guiding principle of this analysis is the question of whether older workers are pushed (involuntarily) or pulled (voluntarily) towards early retirement. See Box 3.

This section provides a quantitative assessment of the behaviour of older workers<sup>(18)</sup> with respect to labour market participation, hours worked, employment contract type, labour market transitions (status and wage), unemployment duration, job search, training, and health status and job satisfaction, with a particular focus on the impact of the personal and household characteristics of older workers on their decision to retire<sup>(19)</sup>. Box 4 provides more technical details about the applied methodology and data sources.

The next section enters into a more detailed analysis of the impact of labour market institutions on retirement decisions, including statutory retirement age, employment

protection legislation, firm-sponsored training for older workers, and unemployment benefits.

### *With ageing, labour market participation decreases ....*

On average, the probability of older women participating in the labour market is 32 percentage points lower than the probability for prime aged women, while the equivalent figure for older men is 38 percentage points less. See Table 4 – first panel.

Individual characteristics also have an important impact on the labour market participation of older workers. Men and women with high skills are likely to participate more than less skilled persons (even more so in the case of women than men) – a finding that may be explained by the fact that high-educated workers perform less stringent physical effort in their work. Similar results are reported by, for instance, Kalwij and Vermeulen

(2005), Mosca and Barrett (2010), and de Nederlandse Bank (2008).

Regarding the composition of the household, having an employed spouse increases the probability of both women and men continuing to work. However, while having an unemployed or inactive spouse, as well as having someone older than 65 years in the household, lowers the probability of continuing to work for older women, it increases it for men.

Labour market participation is also affected by the macro-economic conditions and labour market institutions<sup>(20)</sup>, with a higher unemployment rate tending to decrease the probability of participation, because it discourages workers from entering the labour market, while the availability of early retirement options also tends to lower the participation rates of older workers.

(20) i.e. these effects are captured by the country-fixed effects. Correlating the country-fixed effects with some variable measuring the economic conditions and the labour market institutions shows that Member States' provisions for early retirement and the unemployment rate show a significant negative correlation with the participation rate of both genders.

(18) In this analysis "older workers" are workers aged 55 to 65 years, "young workers" are aged 15 to 24, and "prime-aged workers" are aged 25 to 54 years.

(19) With a brief discussion of country-fixed effects.

### ... and working hours decline ....

On average, older women work some 21.7 fewer hours per month than prime aged women, while older men work 20.8 hours per month less than prime aged men. See Table 4 – second panel.

The presence of elderly persons in a household can influence the number of hours worked in opposing directions: they can do some of the housework and provide the opportunity to increase labour supply, but they can also be in need of care. On balance the relationship between labour supply and the presence of elderly household members is, a priori, undetermined. Table 4 shows that employed older women decrease their labour supply by more than five hours for each elderly person living in the household, implying that, for instance, where a couple includes a retired spouse the employed spouse will adjust her hours worked accordingly. For older men, the presence of elderly persons in the household does not have a significant impact on their hours worked.

The presence of an unemployed or inactive spouse has a significantly different impact on the hours worked by men and women: women decrease their hours, while men increase their hours. The presence of an employed spouse increases the hours worked by both women and men.

### ... but the attractiveness of working part-time increases.

Older age women have a significantly higher probability of working part-time compared to middle-aged women (15.2%) while the equivalent probability for older men is much lower (6.5%). The presence of a spouse, either inactive or unemployed, has a significantly different effect for men and women: for women the probability of taking up a part-time job increases, while for men it decreases. See Table 4 – third panel.

Table 5: Labour market transitions

	EE	ES	EU	EI
Age 15-24	Reference category			
Age 25-54	<b>2.21</b>	0.00	<b>-1.46</b>	<b>-0.52</b>
Age 55-65	-1.44	-0.04	<b>-1.32</b>	<b>2.86</b>
	UU	UE	US	UI
Age 15-24	Reference category			
Age 25-54	4.03	-3.92	<b>0.82</b>	-0.03
Age 55-65	<b>23.92</b>	<b>-30.88</b>	-0.68	<b>8.50</b>
	II	IE	IS	IU
Age 15-24	Reference category			
Age 25-54	0.43	-0.40	0.14	-0.11
Age 55-65	<b>8.14</b>	<b>-6.01</b>	-0.48	<b>-1.46</b>

Source: RWI (2011).

Note: Multi-nominal logit. Labour market statuses are employment (E), self-employment (S), unemployment (U), and inactivity (I). Statistically significant point estimates (5 per cent level) are in bold figures. See Annex 1 for an interpretation of the coefficients.

Table 6: Search intensity by age

	Women Odds ratio	Men Odds ratio
Individual characteristics		
Age 15-24	Reference category	
Age 25-54	<b>0.90</b>	1.09
Age 55-64	<b>0.49</b>	<b>0.64</b>
ISCED 0-2	Reference category	
ISCED 3-4	<b>1.68</b>	<b>1.63</b>
ISCED 5-6	<b>2.17</b>	<b>2.14</b>
Unemployment duration < 6 months	Reference category	
Unemployment duration 6-11 months	1.07	1.06
Unemployment duration > 11 months	0.92	<b>0.86</b>
Unemployment rate	1.00	<b>1.03</b>
Household characteristics		
Number of elderly (>= 65 years) in household	<b>0.94</b>	0.93
No spouse in household	Reference category	
Inactive/unemployed spouse in household	<b>0.76</b>	<b>0.88</b>
Employed spouse in household	<b>0.86</b>	<b>1.17</b>

Source: Table A.3.19 of ISG and RWI (2010).

Note: Search intensity is computed as the number of search methods used by an unemployed individual. Seven search methods are considered: "Contacting the public employment office to find work", "Contacting a private employment agency to find work", "Direct applications to employers", "Asking friends, relatives, and trade unions, etc.", "Answering or inserting advertisements in newspapers or journals", "Studying advertisements in newspapers or journals", and "Taking a test, interview or examination". Note: Ordered logit estimation. Statistically significant point estimates (5 per cent level) are in bold figures. See Annex 1 for an interpretation of the coefficients.

Table 4 – third panel shows that women experience a higher probability of part-time employment than men, while Table 4 – first panel shows that women's probability of participation does not decrease with age as much as that of men. This finding may indicate that flexible hours and part-time work may promote a more gradual move into retirement; see also Gielen (2009). Nevertheless, Graf et al. (2009) find that most older workers substitute part-time work for full-time work if they are given the opportunity, and that the overall effect of promoting part-time work on the total labour supply of older workers is negative.

No significant effect of older age on the use of temporary contracts is found, when compared with the middle-aged group.

### Not surprisingly, older workers have the highest probability to become inactive.

Older workers are less likely to remain in the labour force than workers of the other age groups, and they have a considerably higher probability of moving from employment and unemployment into inactivity. See Table 5.

Older workers also have the lowest probability of transiting from inactivity to employment or unemployment, with inactivity usually leading to retirement. They also have the lowest probability of moving from unemployment or inactivity to self-employment.

### *Older workers experience longer unemployment spells ...*

Older workers are relatively unlikely to move from employment to unemployment but, compared to young and middle-aged workers, they are more likely to stay unemployed, once unemployed. Indeed, the probability of older workers moving from unemployment to employment is, on average, 31% lower than the probability of young workers, and 27% lower than the probability of the middle-aged workers. In other words, the duration of unemployment is on average the longest for older workers<sup>(21)</sup>.

Longer unemployment spells for older workers may have several causes.

### *... either because they search less intensively for work ....*

Older unemployed individuals search significantly less intensively than workers in the other age groups, and older women have a lower search intensity than men. See Table 6. Several factors may explain this. Firstly, towards the end of their careers, older workers may be less inclined to become mobile (geographically and occupationally), thereby reducing their employment opportunities. Secondly, in some Member States, few incentives are given to older workers to search for a job, with limited provision for career counselling and job-search assistance. Thirdly, Bettendorf and Broer (2003) show that 'search frictions' - which require effort to overcome - distort the participation decisions of older workers to a much larger extent than those of young workers because the utility value of a job reduces as retirement approaches. As such, a low job

value leads to a low return to search and consequently a reduced search effort, and a low search effort leads to prolonged unemployment.

### *... because they are trapped in dead-end routes .....*

In some Member States, long-term unemployed can be considered as a step on the road to early retirement; see for instance Lindeboom (1998). However, long-term unemployment is not the only route to early retirement. For instance, Lindeboom (1998) shows, using a micro-econometric model, that in the case of the Netherlands in the 1990s several exit routes for older workers were available, including unemployment benefit programmes and disability insurance. Bloemen et al. (2011) find, also in the case of the Netherlands, that stricter search requirements significantly increase the entry rate of older workers into employment. However, they also present evidence of a higher outflow to sickness-disability insurance schemes.

### *.... or because they may face stigmas*

Employers may hesitate to hire older workers due to outdated skills unsuited to modern workplaces (see Machin and Manning (1999)) or a perception that they may be reluctant to accept organisational change or new types of work; see Taylor and Walker (2003). Nevertheless, 'age discrimination' laws that counteract these trends may reinforce the employment protection of older workers while reducing hiring opportunities if their firing costs increase; see Heywood and Siebert (2009).

### *Health status affects the retirement decision ...*

Declining health affects the retirement decision in several ways; see Lumsdaine and Mitchell (1999). Firstly, poor health amongst older workers has an effect on employability and earnings potential because it leads to lower productivity, greater absenteeism, and fewer opportuni-

ties to update skills and knowledge, and may be an incentive to retire early. Secondly, poor health may change workers' preferences, and result in a higher priority for leisure and early retirement. Thirdly, in a family context, the poor health of a partner may induce people to take more time for care. Given the age-profile of health this is especially relevant for older workers.

Alavinia and Burdorf (2008), Barnay and Debrand (2006), Boersch-Supan et al. (2005), and Kalwij and Vermeulen (2005) provide some empirical evidence, using SHARE data<sup>(22)</sup>, that health accounts for a considerable part of the decline in participation rates with age (citizens in good health retire about two years later than workers in poor health).

Brugiavini et al. (2008) also found that health is an important determinant of early retirement, as poor health is a powerful predictor of people not being able to continue working until official retirement age. However, they point out that cross-national variation in welfare systems affect retirement significantly. For instance, in Member States where other exit routes exist as a form of early retirement (disability pensions, sickness, and unemployment benefits) the reported retirement will be lower.

In recent years, a shift from physical health problems to mental health problems among workers has been identified, see for instance OECD (2010). This has been linked to an increase of psychosocial risk factors at workplaces, for instance through higher stress levels, an intensification and changing nature of work, and more restructuring operations. The large and increasing number of mild and moderate mental health problems has become one of the biggest challenges for workplaces today. Regarding disability at workplaces, mental

(21) This will be discussed in more detail in the next sub-section.

(22) I.e. the 'Survey of Health, Ageing and Retirement in Europe' (SHARE) database. More details about SHARE are available at <http://www.share-project.org/>. Data available for a selected group of European countries.

disorders are leading causes in European Member States. In some high-income countries, as much as 40% of disability can be attributed to mental disorders. As a consequence, mental health problems have become one of the leading causes for absenteeism from work and early retirement all over the European Union. Chart 12 shows an overall trend of increasing benefit claims by older workers due to mental health conditions in the period between 1995 and 2008, as observed in a selected group of Member States. According to WHO 2004 figures from 14 EU-Member States, mental health is the leading factor of disability benefits, accounting for 28% of the benefit claims, followed by diseases of the musculoskeletal system and connective tissue with 21.7%. On the other hand, re-integrating people with mental illness into the labour market is difficult in the sense that employment rates of people with mental illness are particularly low: By and large, only about one in four individuals reporting a mental health problem is in employment.

Finally, it should be noted that the link between health and retirement is not always a direct one and often evolves in phases, starting with reducing working hours, switching jobs, and ultimately retiring early; see for instance Boersch-Supan (2008).

### ... so does job quality.

Job quality<sup>(23)</sup> is an important determinant affecting older workers' decision to retire early.

(23) Job quality is a multi-dimensional concept covering a very broad range of indicators. The European Commission (2001b) states that a safe and healthy working environment, together with a modern work organisation, is essential for quality in work and identifies 10 dimensions of quality in work: composition of jobs and their qualification requirements; profile of workers, their inclusion and access to the labour market, their skills and career development as well as their subjective job satisfaction; aims and operating practices of employers; working environment and health and safety at work in particular; gender equality and non-discrimination; and direction and priorities of employment and social policies.

Table 7: Participation in formal and/or non-formal training

	Outcome: Participation in		
	Any kind of training Marg. Effect	Formal training Marg. Effect	Non-formal training Marg. Effect
Male	0.002	0.004	-0.007
Age 17-21	<b>0.365</b>	<b>0.178</b>	<b>0.039</b>
Age 22-26	<b>0.075</b>	<b>0.031</b>	0.000
Age 27-31	0.008	0.005	-0.003
Age 32-36	Reference category		
Age 37-41	<b>0.002</b>	-0.002	<b>0.004</b>
Age 42-46	0.001	-0.003	<b>0.005</b>
Age 47-51	-0.001	-0.004	0.005
Age 52-56	-0.006	-0.008	0.003
Age 57-61	-0.022	-0.012	-0.008
Age 62+	-0.037	-0.014	-0.015
ISCED 1	-0.053	-0.006	-0.041
ISCED 2	-0.013	0.018	-0.033
ISCED 3	-0.015	0.007	-0.022
ISCED 4	-0.008	0.006	-0.007
ISCED 5-6	Reference category		

Source: A.6.1 of ISG and RWI (2010).

Note: Probit model. Statistically significant point estimates (5 per cent level) are in bold figures. See Annex 1 for an interpretation of the coefficients.

Table 8: Estimation results: hourly wage and monthly income

	Hourly wage Coefficient	Monthly wage Coefficient
Male	<b>0.158</b>	<b>0.216</b>
Female	Reference category	
Age 15-24	Reference category	
Age 25-54	<b>0.174</b>	<b>0.192</b>
Age 55-65	<b>0.223</b>	<b>0.237</b>
Single	Reference category	
Married living with partner	<b>0.158</b>	<b>0.094</b>
Not married living with partner	<b>0.046</b>	<b>0.069</b>
Low skilled (ISCED 0-2)	-0.103	-0.103
Medium skilled (ISCED 3-4)	Reference category	
High skilled (ISCED 5)	<b>0.164</b>	<b>0.158</b>
Number of elderly (>=65) in household	-0.039	-0.049
Full-time employed partner in household	-0.013	-0.026
Part-time employed partner in household	0.008	0.018
Inactive/unemployed partner in household	Reference category	
Full-time. permanent	Reference category	
Full-time. temporary	-0.196	-0.185
Part-time. permanent	-0.048	-0.615
Part-time. temporary	-0.185	-0.834
Unemployed	Reference category	
Legislators, senior officials and managers	Reference category	
Professionals	<b>0.009</b>	-0.106
Technicians and associate professionals	-0.180	-0.255
Clerks	-0.292	-0.378
Service workers and shop and market sales workers	-0.491	-0.565
Skilled agricultural and fishery workers	-0.600	-0.661
Craft and related trades workers	-0.425	-0.491
Plant and machine operators and assemblers	-0.383	-0.438
Elementary occupations	-0.532	-0.636

Source: Table A.5.23 in RWI (2011).

Note: Generally, the coefficients can be interpreted as percentages using the following transformation:  $[\exp(\text{Coefficient}) - 1] \times 100$ . Furthermore, for small numbers the coefficient itself is a good approximation for the percentage change. Statistically significant point estimates (5 per cent level) are in bold figures. See Annex 1 for an interpretation of the coefficients.

It is beyond the scope of the current analysis to consider the effects of all dimensions of job quality on the labour market behaviour of older workers, so the following analysis

is limited to a selected set of quality-dimensions; i.e. workplace conditions, job satisfaction, training, wages, and gender balance. It should be noted that the EU list of indicators

does not include this, even though it is the main, or sometimes sole, indicator used in many other major economies, notably the US.

***Workplace conditions can be an important push factor towards retirement ...***

Siegrist et al. (2006) and Schnalzenberger et al. (2008), using SHARE data, find that there is significant evidence that a poor psychosocial quality of work, such as working in a post that does not correspond with the level of qualification, or physical capabilities, can lead to premature resignation. Conversely, De Nederlandse Bank (2008) reports that, in its survey of Dutch older workers, a significant proportion of older workers delay retirement if they enjoy their work.

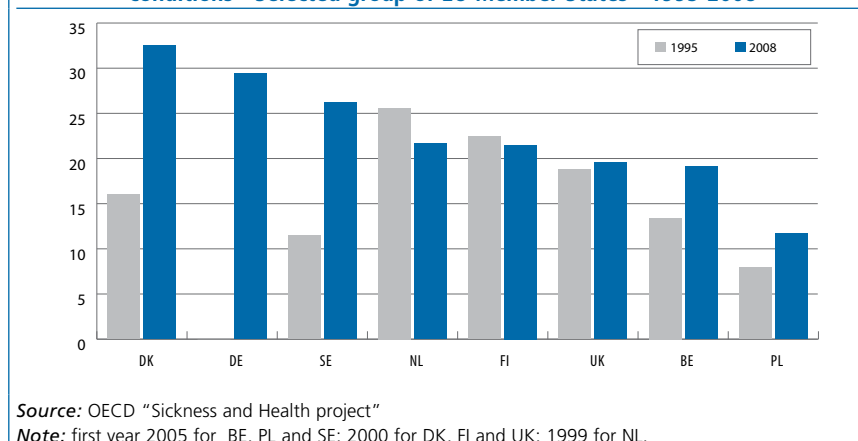
All in all, Blekesuane and Solem (2002) find that older workers who do hard physical work retire earlier than those with little physical strain in their jobs, and that they typically retire via a disability pension.

In these respects it should be noted that working conditions of older workers are of particular relevance in the New Member States, which are still undergoing a major restructuring of their economies. In such an environment, employees may be subject to intense changes in work conditions, which may have an adverse impact on retirement decisions; see for instance Warwick and Economix (2006).

***... whereas adequate education and training can help to postpone retirement***

Continued technological progress, globalisation, and the transition to a greener economy all require constant adaptation of the work force, through education and training, to prevent skills becoming obsolete and, inter alia, older workers taking early retirement. Nevertheless, it should also be noted that such developments (including for instance technological advances in

**Chart 12: Inflows by older workers into disability benefit because of mental health conditions - Selected group of EU Member States- 1995-2008**



teleworking) may create job opportunities for (disabled) older workers who would otherwise be excluded from the labour market.

Table 7 shows that older workers display the lowest predisposition to participate in training compared with the other age groups, particularly with respect to formal, as opposed to informal, training. Participation in training is also significantly linked to prior educational level, with higher educated older workers showing the highest propensity to undergo training.

The analysis does not allow us to determine whether this lower participation is caused by supply or demand factors. Employers may be less inclined to pay for the training of older workers as the return on these investments in human capital is limited by the retirement decision of the employee. As such, Picchio and van Ours (2011), using data from the Netherlands, find that age-specific subsidies for job training may make an important contribution to retaining older workers as it makes it more attractive for employers to train older workers.

Nevertheless, the implications of this finding should be well balanced with Montizaan et al. (2008) who report that workers who participated in firm-specific training in their early careers retire earlier than workers with a general train-

ing background, because employees with firm-specific skills are more likely to be covered by employer-sponsored pension schemes than workers with general skills, which gives these employees the opportunity to retire earlier.

***On average, older workers enjoy relatively high wages***

Table 8 shows estimates for regressions of the logarithm of hourly wages and the logarithm of monthly wages on personal and household variables, including schooling, as well as labour market status – which is an important determinant of wages, (i.e. the so-called Mincerian equation).

The results indicate that, on average, older people have higher hourly and monthly incomes than those aged 15 to 54. Conditional upon other individual and household characteristics, there is also a difference to be noted among older workers. For instance, married workers and workers living with a partner earn more than singles, high skilled workers earn more than lower-skilled workers and, not surprisingly senior officials and managers earn most. Having elderly people in the household is associated with lower income.

The observed wage premium for older age raises the question of whether, and to what extent, this reflects measureable differences in



labour productivity<sup>(24)</sup>. However, as the age profile of productivity is difficult to measure, it is difficult to determine empirically the exact nature of the interaction between wage and productivity for the older workers at a particular point in time. Nevertheless, economic theory may suggest reasons why a gap between productivity and wage of older workers may arise, including implicit long-term contracts, trade union behaviour, human capital formation, and statistical artefacts<sup>(25)</sup>.

Firstly, if one assumes that the employee-employer relation is determined by implicit long-term contracts whereby workers have the prospect of a higher wage if they remain with their employer, the wage will initially be below productivity, but subsequently rise above productivity so that on balance, wages and productivity will be in balance over the working life. As such, older workers will receive a “wage premium”. However, it should be noted that in times requiring greater geographical and occupational mobility, implicit contracts motivated by loyalty are becoming less applicable. Moreover, as the population ages, the relative supply of experienced older workers increases relative to the inexperienced young workers. As such, the wage premium of the experienced older workers may decrease. These cohort effects may then strengthen the incentive for older workers to retire earlier; see Sapozhnikov and Triest (2007)<sup>(26)</sup>.

(24) By contrast, Van Ours and Stoeldraijer (2010) find little evidence of an age related pay-productivity gap (in the Netherlands). Hek and Vuuren (2010) point out that apart from a relatively high wage during the final periods prior to retirement, such wage premium can take different forms, e.g. occupational pension schemes, early retirement schemes.

(25) In their survey of the literature on the empirical evidence regarding the wages of older workers Hek and Vuuren (2010) conclude that “it is unlikely that just one theory explains the wage-productivity gap for all older workers.”

(26) At least, to the extent that this loss of wage premium does not translate into a loss the pension wealth which makes it necessary to work longer to compensate for the income loss.

Table 9: Wage transitions

	Downward transition Marg. Effect	Same decile Marg. Effect	Upward transition Marg. Effect
Male	-0.01	0.00	<b>0.01</b>
Female	Reference category		
Age 15-24	Reference category		
Age 25-54	0.00	0.01	-0.01
Age 55-65	0.02	0.03	<b>-0.05</b>
Low skilled	0.01	-0.02	0.01
Medium skilled	Reference category		
High skilled	<b>-0.05</b>	<b>0.08</b>	<b>-0.03</b>

Source: Table A.6.8 in RWI (2011).

Note: Multinomial logit model; Statistically significant point estimates (5 per cent level) are in bold figures.

Secondly, some economists would argue that trade unions may be more inclined to support the wage demands of the older workers (insiders) than those of younger, newly hired workers (outsiders), and thus create a wage premium for the older workers. See for instance Weiss (1985). To the extent that this hypothesis is supported by the data, it follows that, as a consequence of the loss of insider influence on wage bargaining, the wage premium of older workers may decrease and thus strengthen the incentive for older workers to retire earlier.

Thirdly, older workers may enjoy a wage premium because firm-specific human capital is accumulated, with tenure and/or experience with an employer, and employers recoup the costs of general training later on in the workers' tenure. The market wage is lower than the worker's productivity in the firm, as the market does not take into account the acquired firm specific skills. See for instance Acemoglu and Pischke (1999). This may then imply that when older workers are reallocated to new jobs, where the acquired firm-specific human capital is not required, the wage premium of older workers may decrease and thus strengthen the incentive for older workers to retire earlier.

Finally, the estimated wage premium may also be a statistical artefact in the sense that part of it may be due to the fact that “more productive” (and high earning) workers are retained in employment as they age, while the “less productive” retire earlier.

Finally, it should also be taken into account that there is likely to be considerable heterogeneity among older workers, as the loss of productivity with age will be more pronounced in jobs where performance depends more on physical strength than experience; see for instance Skirbekk (2003). Moreover, productivity development of older workers may differ significantly between the new Member States and the EU-15 Member States in the sense that, in the new Member States where the economies are catching up with the technologies of the rest of the world, the skills of older workers will become outdated sooner – despite their already high levels of education; see for instance Walewski (2008).

Although older workers have a higher probability of enjoying a wage premium, older workers have the lowest probability of increasing their wage levels. See Table 9.

### *Female older workers are expected to become the main driving force behind employment growth of older workers*

The previous analysis showed that, at the present date, there are still noticeable differences in active ageing between men and women. Nevertheless, the analysis also identified drivers that may point in the direction of further catching-up. See also Dahl et al. (2002).

Firstly, as women become better educated in comparison with previous generations, and as higher education correlates with higher labour market

participation and later retirements, it can be expected that the participation rate and exit age of older female workers will continue to catch up in the coming years.

Secondly, as female workers are more likely to be employed in sectors that have a lower incidence of disability and unemployment, and require less intense physical effort than sectors where men are usually employed<sup>(27)</sup>, and as working conditions are strongly correlated with retirement, it is to be expected that the participation rate and exit age of older female workers will increase at a relatively stronger pace than that of men.

Thirdly, as the number of single-person households increases, and given that the labour market participation probability of single women is higher than the participation probability of someone with a partner who is inactive or unemployed, the participation rate and exit age of older female workers may increase through this channel.

Nevertheless, it should also be noted that primed aged women belong to the so-called “sandwich generation” often caring for grandchildren and frail parents. This could become a negative driver with ageing populations.

## 4. MODEL-BASED ASSESSMENT OF ACTIVE AGEING MEASURES

Over the last two decades, policies on Active Ageing have become part of the core priority for policy makers across Europe. At the European level, the 2000 Lisbon strategy, with explicit targets for older workers’ labour market performance, has led to considerable progress in almost all Member States, and schemes that encouraged early retirement, or provided incentives to withdraw from

the labour market, have come to an end or been made more restrictive in most countries.

Many countries have either increased statutory retirement ages or are in the process of doing so and have put in place a range of targeted activation policies aimed at using the huge potential of older people, who are now seen as a necessary part of the labour force, that is necessary to achieve high and sustainable growth in an ever changing economic and societal environment.

The subsections above outline recent evidence on older people’s labour market performance and behaviour, in the light of socio-demographic characteristics and policy action taken by Member States. This section seeks to deliver a model-based assessment of stylised measures tailored particularly to older workers on the basis of DG EMPL’s Labour Market Model (LMM) which had been developed for the European Commission, DG EMPL, by the Institute for Advanced Studies (Vienna) and the University of St. Gallen.<sup>(28)</sup> LMM is a dynamic, computable, general equilibrium model providing an in-depth description of the labour market. At the time of simulation, it covered six countries, namely Denmark, Germany, Italy, Austria, Poland, and the UK, in order to capture a wide range of welfare state and labour market models.

LMM distinguishes three skills groups and eight age categories, so that modelling of policy measures designed to promote older people’s employment becomes possible. Among the eight age categories, five are of working age, with the oldest age bracket (55 to 69 years) representing a mixed group which has access to some form of retirement. That is, people in this age group constantly weigh up the

advantages of staying in the labour market against the merits of retirement (balancing the benefits against the costs of staying).

The model assumes that those concerned continue working as long as the marginal advantage of doing so is, for them, higher than the marginal cost, taking account of the fact that working longer not only increases current income, but may also increase entitlements to future benefits such as pensions, unemployment benefits, severance pay, etc.

On the other hand, a generous pension, high labour taxes or the ‘disutility’ of having to go to work may discourage workers from prolonging their career.

All these incentives or disincentives for individuals to work are captured in the “**implicit participation tax for older workers**” which “summarises all the disincentives [or incentives] for postponing retirement that are inherent in the system”<sup>(29)</sup>. For example, speeding up pension indexation would shift older workers’ implicit tax on participation by making it more attractive to retire, all other things being equal. Conversely, granting an in-work subsidy or a reduction in labour taxes would encourage people to continue working.

Likewise, firms are presumed to base their decision to recruit (older) workers, to retain them, or to offer firm-sponsored training on the basis of the specific individual firm-worker relationship, which may be influenced by the institutional setting. For example, employment protection instruments such as severance payments would in fact increase the cost of a future separation from a worker, which may discourage firms to lay off staff to some extent. However, it might also discourage firms from hiring people if possible future firing costs are taken into account.<sup>(30)</sup>

(27) Such as manufacturing and construction.

(28) For a technical model description, see Berger et al. (2009), particularly Section 2 of the final report. A non-technical outline can be found in the 2010 edition of the European Commission’s Employment in Europe report; see Annex 2 to Chapter 2. Other countries are currently being included in a follow-up project.

(29) Berger et al. (2009), 2nd part of the final report, p. 25. See also the 2010 Employment in Europe report by the European Commission, Box 9 on p. 98.

(30) See Berger et al. (2009), 3rd part of the



Firing costs also impact on a firm's willingness to invest in firm-sponsored training. The LMM takes account of the possibility that training taken by workers will yield higher individual productivity that would generate an additional job surplus to both employers and employees. However, any increase in potential firing costs in the future could discourage firms from such an investment, in addition to bearing the cost of training.

#### 4.1. The potential impact of five Active Ageing measures: a simulation

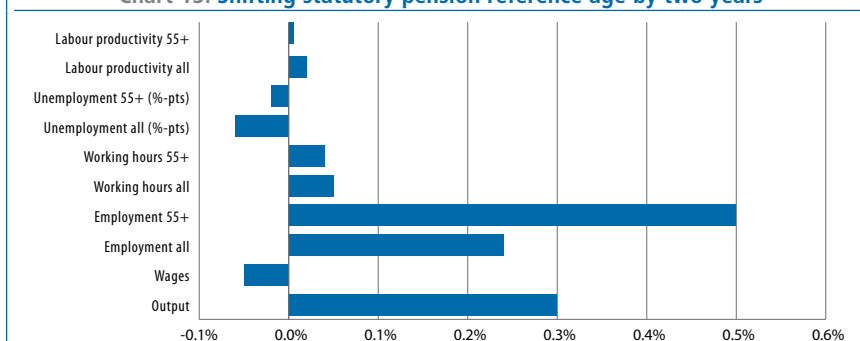
The above considerations are taken into account by the LMM and the following sections contain simulations of five popular measures taken or envisaged by Member States to strengthen older workers' employment rates, namely:

1. To increase the statutory retirement reference age for access to a state pension by two years
2. To reduce income taxes on paid work by older workers, by an equivalent of 0.1 % of GDP
3. To grant a subsidy to firms in order to encourage them to provide or sponsor training for older workers, by an equivalent of 0.1 % of GDP
4. To reduce unemployment benefits by a wage-independent lump sum, for an overall amount corresponding to 0.1 % of GDP
5. To increase the layoff cost of older workers by imposing administrative costs and increasing severance payments by 20 %.

All measures were first simulated for Germany. In the second step, a labour tax reduction for older workers (measure 1) is shown for all six countries covered by the model, in order to illustrate how the magnitude of

final report, p. 9.

Chart 13: Shifting statutory pension reference age by two years



Source: Own calculations based on DG EMPL's Labour Market Model.

the impact may vary across countries.

It should be noted that only steady state results are shown, i.e., the model assumes a stable long-term equilibrium at the initial state, with policy measures seen as shocks that cause the system to adjust over a number of periods until it reaches a new steady state equilibrium.

In other words, although the LMM can take account of temporary equilibria and follow the adaptation process,<sup>(31)</sup> the analysis remains comparatively static with the new long-term equilibrium (after adjustments) plotted against the initial equilibrium, and distinguishes the impact on the main economic variables, namely employment, unemployment, the number of working hours, labour productivity, wages, and output.

##### 4.1.1. Shift statutory retirement reference age for drawing on a state pension

The European Commission's 2010 Green Paper on pensions indicated that many European Member States have already changed, or are in the course of changing, the age thresholds for pension eligibility.<sup>(32)</sup>

In Germany there was already, from 1997 to 2005, a gradual shift of the

upper age threshold from 60 to 65 years for anticipated old-age pensions, and a shift for invalidity pensions (minimum age thresholds were shifted in line). In parallel to the shift, actuarial deductions (and supplements) were introduced in case a person retires before (after) the official retirement age. These changes drove the increase in the employment rates of older people observed over that period.<sup>(33)</sup>

For regular pensions a further shift was agreed in 2007, which will gradually increase the retirement age by a further two years to 67 years. This will start in 2012 and be fully phased in for pensioners retiring from 2029. The measure is expected to increase the labour force by approximately 2.6m people.<sup>(34)</sup> After 2029, people will be able to draw on an old-age pension before the age of 67 only if severely handicapped or if certain conditions referring to the length of their insurance record are met.

In the light of the above, a retirement age shift of two years has been simulated for the German labour market using the LMM. In the model's terms, the 'statutory retirement age' is the reference to calculate actuarial deductions or supplements in case of retirement before or after this official age. At any given age of retirement the shift will lower the individual pension by increas-

(31) The 2010 Employment in Europe Report by the European Commission contains the simulation of a temporary in-work subsidy in a comparative-dynamic analysis; see European Commission (2010a), Chapter 2(6).

(32) See COM(2010)365 final, Chart 6 in the Statistical Annex.

(33) See German National Strategy Report on Social Protection and Social Inclusion 2008-2010, Bundesministerium für Arbeit und Soziales (2008), Chapter III.

(34) See German National Reform Programme 2011, Bundesministerium für Arbeit und Soziales (2011), p. 22.

ing actuarial deductions or decreasing supplements. The fact that some groups will not be eligible any longer to retire before the age of 67 can not be taken on board. Hence, LMM assumes the only impact on older people's labour market participation behaviour to come from the lowering of pension levels as a result of the reference age shift.

Chart 13 depicts the impact of such a measure taking account of the fact that it is possible to retire before the official age, but with a reduced pension.

Higher statutory retirement ages will lead to higher deductions from pensions if workers decide to retire before reaching the official retirement age. Pension levels will decrease. On top of that, to the extent that the financial relief on the pension scheme<sup>(35)</sup> would be used to lower contribution rates, workers' take-home pay would be boosted. As a result, the implicit tax on older workers' participation decreases and deciding to draw a pension early becomes more costly, so more older workers will decide to postpone retirement, adding to labour supply, potentially increasing employment and reducing unemployment.

Firms accelerate their demand for labour as they benefit from lower gross wage rates and lower non-wage labour costs. Gross wages tend to decline because of the additional labour supply and higher take-home wages make workers more conciliatory when bargaining on higher gross wages. Non-wage labour costs decrease in line with the lower pension contribution rate.

Together with (moderate) productivity increases, production will rise considerably, further triggering participation and employment, reducing unemployment and stepping up the

average number of hours worked across all age groups.

By nature, this measure affects older workers first, but the employment shift will benefit all age groups and hence the reduction in the unemployment rate of older workers is less pronounced. This is because the retirement decision is about whether or not to participate in the labour market at all rather than whether or not to be employed or unemployed **once participating**. Thus, the positive employment impact on older workers follows from inactivity rather than from unemployment.

The LMM suggests that shifting official retirement ages will have beneficial effects on the entire labour market. However, LMM cannot depict the measure in detail. For example, as mentioned above, the impact outlined here on participation and employment is a result of the lower pension level as the reference age for deductions increases. Unlike what happened in Germany, no one will be "forced" to actually postpone the drawing on her/his pension. Therefore, the gains in terms of participation and employment obtained here will be moderate compared to what could be expected as an outcome of the German reform. Moreover, fluctuations in the economic cycle cannot be taken on board by LMM even though they determine to a large extent older people's perspective on the labour market.

**Table 10: Average tax rate of a single average earner without children, % of gross wage (2009)**

Denmark	39.5
Germany	41.3
Italy	29.8
Austria	32.6
Poland	24.4
United Kingdom	25.3
EU-27	29.5
United States	22.9

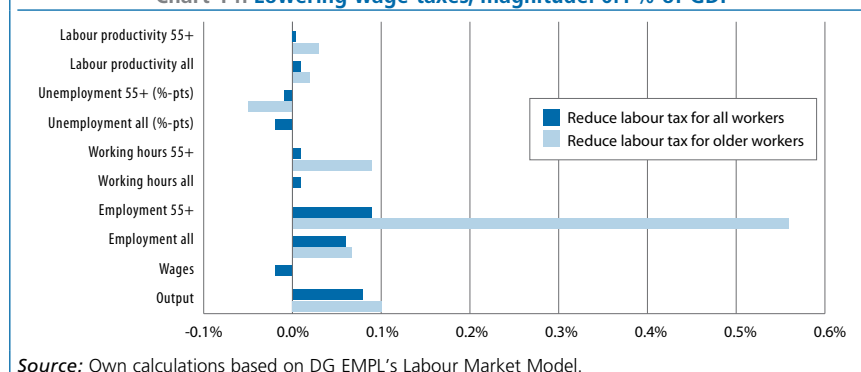
Source: Eurostat/OECD.

#### 4.1.2. Reduce labour cost for older workers

'Making work pay' policies and targeted reforms of the tax-benefit system, to address the particular situation of older workers, are key to reducing disincentives to both labour supply and demand<sup>(36)</sup>.

From the perspective of workers, wage taxes and social security contributions impact on their take-home pay and constitute an implicit tax on participation. Also wage-based employer social security contributions tend to increase the labour cost and to distort the balance between productivity and labour cost. Therefore, if wage taxes and social security contributions are excessive, this might constitute an impediment to employment. This is particularly true for older workers because once they are eligible to retire they have the option to withdraw from the labour market if they feel that the pension replacement rates and/or low net

**Chart 14: Lowering wage taxes, magnitude: 0.1 % of GDP**



Source: Own calculations based on DG EMPL's Labour Market Model.

(35) Those who stay on the labour market continue to pay contributions instead of receiving a benefit. Those leaving prematurely would accept higher deductions.

(36) In this context, the Annual Growth Survey 2010 made the case for a revenue neutral shift from labour taxation to consumption.

wages no longer justify postponement. Conversely, tax and contribution reductions targeted at older workers, whether or not temporary or in combination with hiring subsidies, are deemed to influence their employment rates.

Average tax rates<sup>(37)</sup> on wages across the EU as a whole are around 30 % and have not declined over the last decade. This average is far higher than in the US, although there is considerable disparity between EU Member States.

In order to test the hypothesis that a lowering of the tax rates for older workers might be a way of stimulating their labour market participation, a simulation of such wage tax rate reduction was carried out for Germany. It is assumed that the measure is funded by raising VAT, i.e. shifting the balance of the overall tax burden from direct to indirect taxation.

The brighter bars in Chart 14 indicate the impact of such measure, i.e. if one concentrates the wage tax reduction to older workers (concentration scenario). This situation is plotted against a non-concentrated implementation in darker bars: an income tax reduction spread across all age groups. For both policies a magnitude of 0.1 % of GDP is assumed (a medium-sized package equivalent to some €2.5 bn per year in Germany). For the sake of simplicity it is further assumed that the income tax rate on wages be proportionally decreased, the proportion being just sufficient to reduce tax volume by 0.1 % of GDP and equal for all workers irrespective of age and skills group. That is, if individual wage taxes were

$TW_i = t_i \cdot l_i \cdot w_{it}$   $TW$  being the wage taxes for agent  $i$ ,  $t$  the tax rate,  $l$  the number of hours worked, and  $w$  the gross hourly wage rate, the lowering would result in

$$TW_i^{new} = t_i \cdot (1-r) \cdot l_i \cdot w_{it} \quad r \text{ being the unique proportional reduction with}$$

$$r = \frac{0.1/100 \cdot GDP}{\sum_{i=1}^N t_i \cdot l_i \cdot w_{it}}$$

$N$  being the number of individuals in the economy. i.e.,  $r$  relates the targeted volume of reduction to entire ex-ante tax base.

Lower wage taxes for **older workers** reduces the implicit tax on their labour market participation, and leads to significantly higher employment and lower unemployment, by both encouraging more people who are eligible to retire to continue participating in the labour market, but also by strengthening the job search effort of unemployed older workers. For those that are already employed, higher net wages would encourage workers to work longer hours. Given the shift in the employment rate of older workers their productivity increases, because it is assumed that individual productivity develops when they are active and depreciates otherwise<sup>(38)</sup> - an 'endogenous productivity effect' with higher productivity and higher employment leading to higher production and GDP.

The overall employment effect is slightly stronger in the concentration than in the non-concentration scenario. This is because older workers' elasticity of labour market participation with respect to (net) wage changes is higher than for prime-agers, because the former are assumed to have the option to retire at any time. Hence, the additional employment recruits from inactivity rather than unemployment when focussing the measure on older workers - which explains why the impact on the unemployment rate is relatively small compared to the non-concentration scenario.

Given the exogenous supplement in the form of a tax subsidy to shift their take-home pay, this would cause their market wages to decline because their fallback position in the wage

bargaining process would improve, other things being equal. In other words the wage tax relief would shift their take-home pay, easing to some extent their pressure to bargain for higher wages.

However, wages decrease only in the non-concentration scenario and remain stable if the policy measures concentrates on older workers.

- There is an age **composition** effect in that older workers tend to have higher hourly wages compared to other age groups. In so far as the employment of older workers shifts pronouncedly, this would slow down the average wage decrease, other things being equal.
- Even in the concentration scenario, the (gross) wages of **older workers** clearly decline. However, the impact of the stimulus on production and GDP is some 20 % higher in the concentration scenario. Higher production would (slightly) pull up wages for the non-old age groups, so that the overall gross wage levels in the concentration scenario would remain roughly stable.
- As the overall employment effect is stronger in the concentration scenario, so is the impact on individual productivity following the endogenous productivity effect. Higher productivity would push up wages, other things remaining equal.

These effects partly offset the downward pressure on gross wages in the concentration scenario. The overall impact of an income tax reduction for older workers appears favourable, augmenting employment and take-home pay and shifting productivity and production.

The way the measure is designed, with a fixed proportional tax reduction factor ( $r$ ) has some interesting **distributional side-effects**. As the tax reduction factor is the same for all age and skill groups, it leads to a reduction in the progressivity of direct (income) taxation. Hence,

(37) The tax rate is defined as the income tax on gross wage earnings plus the employee's social security contributions less universal cash benefits, expressed as a percentage of gross wage earnings. See [http://epp.eurostat.ec.europa.eu/cache/ITY\\_SDDS/EN/earn\\_net\\_esms.htm](http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/earn_net_esms.htm)

(38) See Berger et al. (2009), 2<sup>nd</sup> part of the final report, p. 17.

Table 11: Workers' participation in continuous vocational training

	Total	Participation in % by age group		
		<25 years	25-54 years	>54 years
Belgium	51	49	52	37
Bulgaria	39	34	41	27
Czech Republic	67	63	69	60
Denmark	37	32	38	38
Germany	39	34	41	27
Estonia	32	33	35	19
Greece	28	29	29	15
Spain	51	46	53	36
Italy	49	43	51	38
Cyprus	43	40	41	20
Latvia	27	30	28	14
Lithuania	28	32	29	16
Luxembourg	60	54	61	39
Hungary	23	18	25	13
Malta	52	55	53	39
Netherlands	39	31	43	27
Austria	38	42	39	25
Poland	36	32	37	23
Portugal	46	44	48	31
Romania	31	33	31	21
Slovenia	58	57	60	37
Slovakia	56	50	58	48
Finland	46	32	49	38
Sweden	51	44	54	41
UK	39	40	41	30

Source: Eurostat (Continuous Vocational training Survey 2005)

with or without concentration on older workers, the tax relief would be relatively more substantial for higher income earners, due to the correlation between wage and skills level. At the same time, through the higher labour supply elasticity with respect to income changes for the low skilled,<sup>(39)</sup> the wage-induced shift of labour supply favours employment increases with skills levels.<sup>(40)</sup> Hence, a **less progressive scheme of direct taxation** would encourage a **more favourable distribution of skills**. However, it would also contribute to the employment gains because the LMM takes account of the fact that employment rates increase with higher educational attainment levels.

#### 4.1.3. Grant a subsidy to firms for staff training offered to older workers

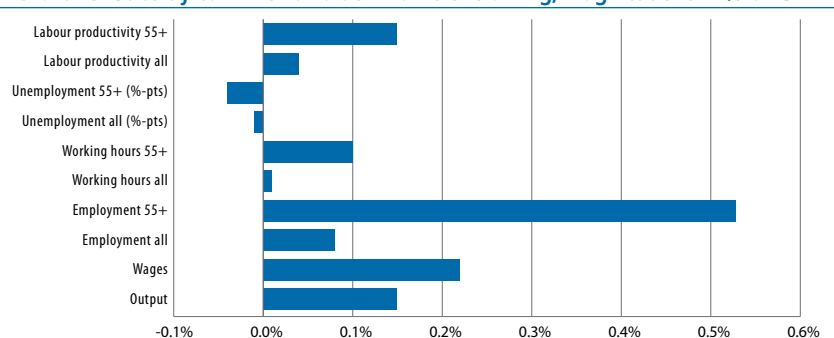
The 'Employment in Europe' report of 2007 underlined the increasing importance of developing Continuous Vocational Training (CVT) in the EU as the rapidly changing structure of the economy defines new needs in terms of updated working and generic skills.<sup>(41)</sup> There is little doubt that European economies will experience a further shift towards knowledge and skills intensive occupations.<sup>(42)</sup> The report concluded that fast transitions away from manufacturing dominated econ-

omies towards a service-based society leads to an increasing importance in the supply of training services and in raising incentives for workers to enrol in them. The challenge of employability of older workers is enhanced by the context of the economic and financial crisis which has intensified the restructuring and reallocation of labour.

This sub-chapter seeks to throw some light on the possible transmission path of a subsidy granted to firms in order to offer firm-sponsored training to older workers, given that their inclination to enrol into CVT is seen to be particularly low; see also the analysis of Section 3. Once again, Germany will be the reference case for which an additional training subsidy is simulated, amounting to 0.1 % of GDP. The measure is assumed to be funded via lump-sum taxes which, in contrast to wage taxes, are assumed to be incentive neutral since they "have no incentive effects other than shifting income from the private to the public sector"<sup>(43)</sup>.

The results obtained from the simulation are in line with expectations. The subsidy will induce firms to offer more training to their staff because, for a given yield of training in the form of increased labour productivity, the effective cost is reduced due to the subsidy. So, in line with standard micro optimisation behaviour, firms will speed up their training sponsorship until marginal return from doing so is equal to or below the (lowered) marginal cost.

Chart 15: Subsidy to firms for older workers' training, magnitude: 0.1 % of GDP



Source: Own calculations based on DG EMPL's Labour Market Model.

(39) See Berger et al. (2009), final report, 2<sup>nd</sup> part, Section 9.2.5.

(40) The same phenomenon can be observed with respect to age in the scenario which grants the tax reduction to all age groups: given a certain seniority premium in age-dependent wage rates, the rate by which older workers' employment is being shifted is some 60 % above the average increase

(41) European Commission (2007), 'Employment in Europe', Chapter 4.

(42) Cedefop (2010a), Chapter 6.1

(43) Berger et al. (2009), 3<sup>rd</sup> part of the final report, p. 9.

The additional training will improve older workers' productivity. The increased workforce productivity will improve their employment, leading to higher wages and longer hours. A profound shift of market wages will encourage more older workers to remain active instead of retiring. As older workers' participation behaviour is more elastic with respect to wage changes than in the other groups, a profound shift of both participation (+0.19 %-pts) and employment rate will be the result. A smaller part of the additional older workers' employment corresponds to a re-employment of older unemployed.

These results may provide encouragement for government support of firm-sponsored training. However, the role of governments in skills development is not easy to define, bearing in mind possible market failures concerning the quality of the training, or the likelihood of a worker staying in the firm once trained. These tend to cause under-investment of firms in training which is hard to anticipate from the governments' perspective. Subsidies, on the other hand, may lead to displacement or deadweight effects in a way that less efficient activities may be subsidised or the subsidies may be tapped for training activities which may have been carried out anyway. In a stylised simulation these problems cannot be taken account of properly. The 'Employment in Europe' report of 2007 discusses them at length.

#### 4.1.4. Lower wage independent unemployment benefits

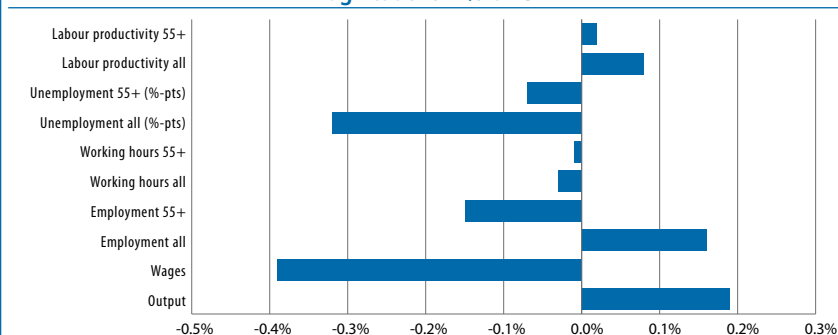
Member State unemployment benefit systems vary in concept and operation. Roughly, one can distinguish between wage dependent and wage independent benefits. Since 2005, this distinction has become more evident in Germany where the so called "Hartz-IV-Reform"<sup>(44)</sup> came into effect. The former "Arbeitslosenhilfe" was a tax financed social assistance scheme for unemployed persons, with payments dependent on former wage income. This system was merged with the general social assistance scheme to constitute the so-called "Arbeitslosengeld II" (*Grundsicherung für Arbeitsuchende*). This new basic tax-financed providence scheme is **means-tested** which means that (in contrast to the former Arbeitslosenhilfe) payments are independent of former wage income.

It is complementary to the contribution based unemployment insurance scheme "Arbeitslosengeld" as people would receive "Arbeitslosengeld II" once their insurance benefit has run out (after a maximum of two years for people aged 58 years or older).

German labour market performance since 2005 suggests that the approach to strengthen people's own responsibility, supporting stronger incentives to search for jobs and to remain in employment, appears to have been successful. Nevertheless, while Germany has achieved a major reduction in overall unemployment since 2005, the proportion of the long-term unemployed (one year or more) is still among the highest in the EU, particularly for older workers, see Chart 17.

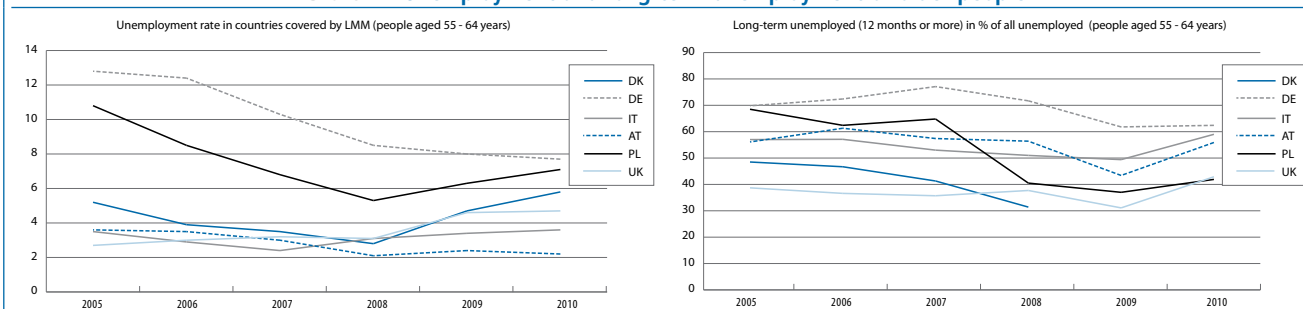
These findings raise the issue of the likely impact on older people's labour market performance

Chart 16: Lower wage independent unemployment benefits for all workers, magnitude: 0.1 % of GDP



Source: Own calculations based on DG EMPL's Labour Market Model.

Chart 17: Unemployment and long-term unemployment of older people



Source: Eurostat LFS.

(44) Viertes Gesetz für moderne Dienstleistungen am Arbeitsmarkt, see <http://www.bmas.de/DE/Service/Gesetze/viertes-gesetz-fuer-moderne-dienstleistungen-am-arbeitsmarkt.html>



of changing the level of unemployment benefits. In the simulation, applied to the German reference case, the measure will not be concentrated on older workers because income independent benefits are means-tested in most countries, so that a change in their level for one particular age group would not be realistic. The magnitude of the measure would be 0.1 % of GDP or some 2.5 bn per year (total expenditure for "Grundsicherung für Arbeit-suchende" 2010: 36 bn). For modelling purposes, it is assumed that the financing would come from the levy of lump-sum taxes.

Lowering unemployment benefits would tend to worsen a worker's fallback position in the case of unemployment in that it would make "being employed" relatively more attractive to "being unemployed", and would reduce the desire to bargain hard for higher wages in a negotiating process. Given the distribution of bargaining power between firms and workers, this would result in lower market wages. The wage decline would trigger firms' demand for workers, resulting in a shift in aggregate employment and production. Moreover, from a worker's perspective, the wage rate reduction is a disincentive to working longer hours and hence causes the average number of hours worked to decline.

In contrast to the aggregate impact, **older workers'** employment would decrease. The reason lies in LMM's assumption that the older workers' situation is characterised by the option to retire rather than by staying unemployed. In other words the effect of lower unemployment benefits and market wages on encouraging older people (whether employed or unemployed) to withdraw from the labour market is stronger than the incentive to seek employment, bearing in mind that it is more difficult for older individuals to find a new job than it is for young or prime-age workers. Thus, given their search intensity, the reduction in the unemployment rate would be less pronounced.

In the context of actions in pursuit of fiscal balancing in the aftermath of the crisis, a number of Member States have envisaged or have already taken action to tighten eligibility criteria for social security benefits or to lower their levels, and some of these austerity measures concern the level of unemployment benefits.<sup>(45)</sup> The model simulation shows that cutting these benefits or limiting their duration might help, in the long run, sustain public budgets, but it might also be detrimental in terms of reducing the incentives for older people to retain or take up employment.

#### 4.1.5. Shift the cost of separations from older workers

The strictness of a country's Employment Protection Legislation (EPL) is usually measured using the synthetic indicator created by OECD, which captures the procedures and costs involved in dismissing individuals or groups of workers and the procedures involved in hiring workers on fixed-term contracts, regular contracts, or temporary work agency contracts.<sup>(46)</sup>

For the countries taken into account by LMM it appears that, on the basis of the overall index, Germany

has the strongest protection in place, and that it has the second strongest protection against collective dismissal - a fact which has long fuelled political debate about the impact of EPL, particularly dismissal protection, on employment performance.

We consider the effects of an increase of EPL. It is assumed that the administrative cost of separations from older workers will be increased by 20 %, as will severance payments where a firm dismisses an older worker.<sup>(47)</sup> Table 12 shows the consequences for the core variables after such an intervention.

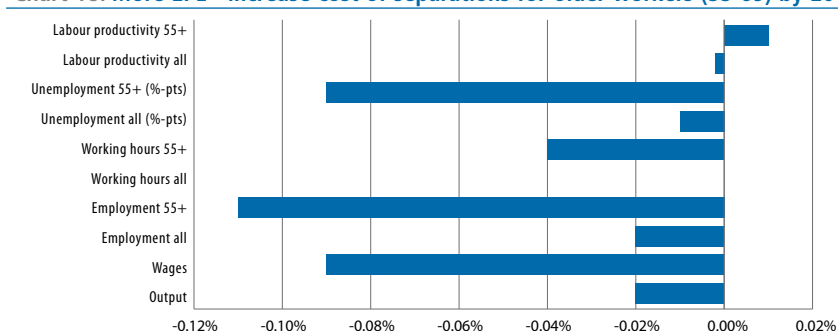
If dismissals become more expensive, this obviously constitutes a negative incentive for firms to proceed with layoffs, as a result of which the (frictional) unemployment of older workers would decrease. However, the employment of older workers

Table 12: Employment Protection Legislation, strictness according to OECD indicator

	Overall	Collective dismissals
Denmark	1.50	3.13
Germany	2.12	3.75
Italy	1.89	4.88
Austria	1.93	3.25
Poland	1.90	3.63
United Kingdom	0.75	2.88
OECD Countries	1.94	2.96

Source: OECD.

Chart 18: More EPL - increase cost of separations for older workers (55-69) by 20 %



Source: Own calculations based on DG EMPL's Labour Market Model.

(45) European Commission (2010b), "The choice of effective employment policies to mitigate a jobless recovery in times of fiscal austerity", Annex.

(46) See OECD on [http://www.oecd.org/document/11/0,3746,en\\_264\\_37457\\_426952\\_43\\_1\\_1\\_1\\_37457,00.html](http://www.oecd.org/document/11/0,3746,en_264_37457_426952_43_1_1_1_37457,00.html)

(47) A similar simulation was carried out by Berger et al. (2009), 3rd part of the final report, on the basis of LMM in the context of Flexicurity, i.e. they consider lowering German EPL back to Danish levels; see p. 7ff.



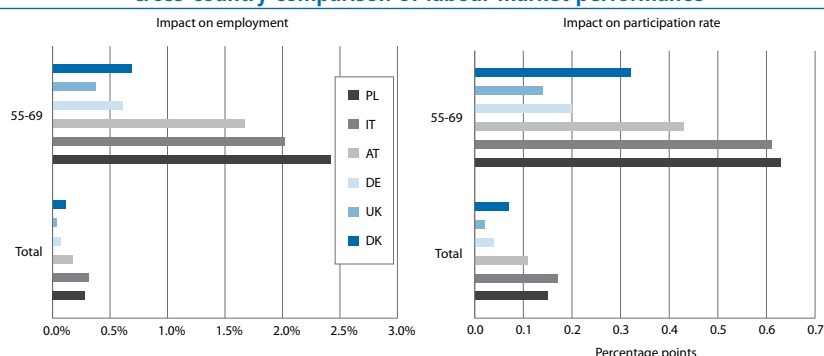
would also decrease for a number of reasons. When posting vacancies, firms take the potential additional firing costs into account. If the costs rise in the event of a separation, this would make it less attractive for firms to recruit older staff, all other things being equal, which would result in lower demand for older workers and hence lower employment. Both higher dismissals and firing costs, as well as the shrinking labour demand, would pull down wages which would tend, in turn, to encourage workers to work fewer hours and further reduces their labour market participation.

Labour productivity of older workers would edge up slightly given the significant loss of older workers in employment but it is remarkable that overall labour productivity drops (though to a negligible extent) despite a significant loss of overall employment and a lower number of working hours. The LMM takes into account the fact that individual productivity depreciates in periods when workers stay away from the labour market and improves only when they are employed. These results are rather sobering in that they suggest that increasing the protection of older workers could, to some extent, be at the expense of their employment. However, as outlined in Section 3, there are many quality-of-work related or individual aspects that are particularly relevant to older workers that are not taken account of by the LMM and which have strong implications regarding individual labour productivity, notably health at work, work satisfaction, future prospects or individual career considerations, and the family context.

## 4.2. Lowering labour cost for older people: A simulation for six Member States

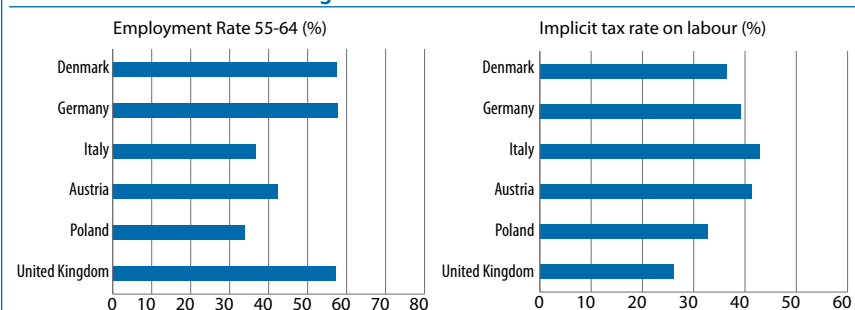
Section 4.1.2 above shows the labour market impact of lowering labour cost through the income tax rate, using Germany as a reference case. However, the model supports at present six Member States, covering

**Chart 19: Lowering wage taxes for older workers, magnitude: 0.1 % of GDP, cross-country comparison of labour market performance**



Source: Own calculations based on DG EMPL's Labour Market Model.

**Chart 20: Factors contributing to strong employment gain following a lowering of wage taxes for older workers**



Source: Eurostat LFS, 2008-2010.

the widest possible range of welfare state models in Europe (with further extensions currently under preparation). This subsection provides a cross-country simulation of an income tax reduction for older workers.

It should be recalled that the tax relief corresponds to 0.1 % of GDP. It is financed through VAT and modelled as a proportional reduction of the tax rate where the rate of reduction is equal for all age and skill groups. As demonstrated above, a constant reduction rate reduces tax progressivity, but favours the employment of high skilled people in particular. The impact on employment is shown in Chart 19.

In line with expectation, since the measure is concentrated on older workers, the impact of the income tax relief on older people's participation and employment is a multiple of the aggregate effect. However, as Chart 21 reveals, the impact varies greatly across countries. These differences depend on a number of factors:

1. The impact is more significant the lower the number of older people in employment (target group). Given the scale of the subsidy (0.1 % of GDP), the impact per person targeted is greater if the number of targeted persons (older people in employment) is lower. Hence low rates of employment of older people should lead to a more significant tax relief per person, and favour stronger employment gains, all other things being equal.
2. The impact on the employment of older people should be greater the higher the tax rate is on labour<sup>(48)</sup>, for two reasons. Firstly, as the tax rate reduction is modelled as a fixed proportion  $r$  of the ex-ante

(48) The implicit tax rate on labour displayed in the chart is defined as the sum of all direct and indirect taxes and employees' and employers' social contributions levied on employed labour income divided by the total compensation of employees working in the economic territory increased by taxes on wage bill and payroll. See Eurostat on <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsiem070>

wage tax rate  $t$ , there is a leverage effect since, given  $r$ , the higher the initial tax rate  $t_a$ , the higher the extent of the lowering  $r \cdot t$ . Secondly, lowering the taxes on labour by a given amount would induce more people to search for employment where labour taxes had previously been (too) high.

Combining the two by assuming high labour taxation and low older person's employment would hint towards a higher sensitivity of labour supply and demand with respect to labour taxation. This would be particularly true in Italy; the given change in taxation would result in a profound change of employment.

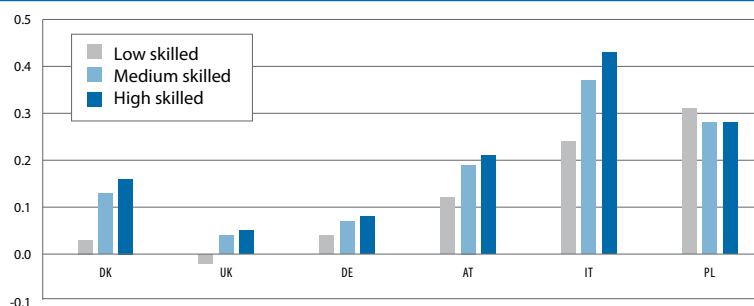
Bearing in mind the skills distribution effect described in Section 4.1.2 for Germany (higher skills, higher employment effect), the breakdown of the (overall) employment yield by skill levels for all six countries is of interest:

All countries follow the general skills distribution pattern of employment, with the exception of Poland which has one of the most significant shares, in the EU, of low-skilled unemployed amongst its older people. Shifting net wages by lowering wage taxes would induce a relatively high number of low-skilled unemployed to search for a job, and therefore, unemployment among the low-skilled decreases most in Poland.

The skills distribution effect is most visible in Italy where employment yields amongst the medium and high-skilled is by far the strongest. One reason is the distribution effect described in Section 4.1.2 above: the tax subsidy shifts net wages of the medium- and high-skilled by the most in Italy which, all other things being equal, would encourage the largest number of workers to search for employment.

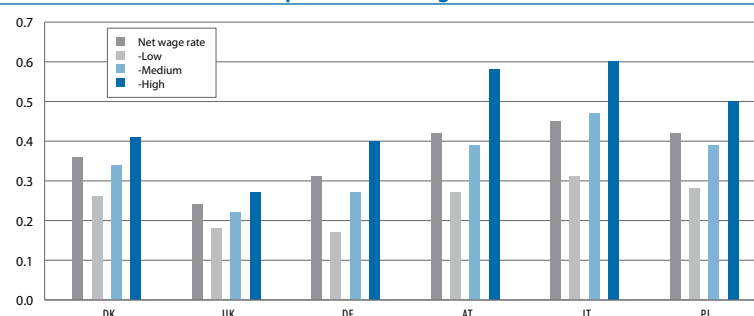
The extent of the employment yield amongst the medium- and high-skilled has implications for investment and hence capital intensity as well as GDP since, in the LMM, there is a complementarity between

**Chart 21: Lowering wage taxes for older workers, magnitude: 0.1 % of GDP, impact on overall employment by skill level**



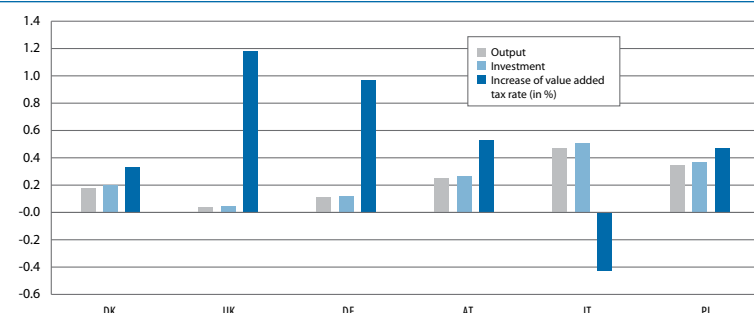
Source: Own calculations based on DG EMPL's Labour Market Model.

**Chart 22: Lowering wage taxes for older workers, magnitude: 0.1 % of GDP, impact on net wage rates**



Source: Own calculations based on DG EMPL's Labour Market Model.

**Chart 23: Lowering wage taxes for older workers, magnitude: 0.1 % of GDP, impact on investment, output, VAT rate**



Source: Own calculations based on DG EMPL's Labour Market Model.

skills and capital such that high-skill employment is a stronger complement to investment in capital than low-skilled employment.

As a consequence, the impact of the measure on capital intensity would be greatest in Italy; see Chart 23 which also shows the highest overall relative increase in VAT tax revenue. The employment, investment, and output gains in Italy would even result in a positive change to the budget balance, i.e. the measure would be more than self-financing. Viewed across countries, the change in the budget balance would largely reflect the overall impact on these core macro magnitudes.

It is doubtful, however, that an overall budgetary impact, as depicted for Italy in the LMM, could actually be expected from a tax cut, even if the employment and investment elasticity with respect to such a measure were considerable, since there is little empirical evidence for self-financing tax cuts. However, model simulations such as the one presented here do, at least, demonstrate that identical measures can produce different labour market and economy outcomes, depending on the institutional framework in the respective countries – factors that labour market models can only take into account to a limited extent.

## 5. MAIN FINDINGS AND POLICY IMPLICATIONS

### *Active ageing strategies seem to have worked in the last decade*

- Since 2000, and following the adoption of the Stockholm and Barcelona targets, there has been a general improvement in the participation of older workers in the labour market, which has withstood the adverse consequences of the 2008-2009 economic recession. Apart from cohort effects driving the female component, a key element in the improvement was the general increase in the statutory retirement age. However, the transition to retirement may follow a variety of paths: through unemployment, sickness or disability insurance; through early-retirement; through partial retirement and private pension schemes. In so far as limiting the exit via one route may induce a higher exit rate via other routes, policy makers should take into account these substitution effects when considering how best to increase the employment of older workers.
- A principal component analysis of indicators representing the variety of national labour market institutions and social systems suggests that there is a mutually reinforcing interaction between labour market systems and social security systems. The recent crisis has revealed that segmented labour markets may be a driver of early withdrawal from the labour market, whereas flexible working conditions and lifelong learning help to keep older workers in employment.
- Beyond the retirement age, policies should address a number of factors comprehensively, recognising the many contextual elements which influence individual participation and retirement decisions.<sup>(49)</sup>

### *Individual and household characteristics matter*

The evidence in Section 3 shows that individual and household characteristics are important determinants of the labour market behaviour of older workers, showing that there are potential benefits from targeted policies designed to encourage older people to remain active longer, and retire later. The following policy implications are specifically supported by the analysis:

- On average, the drop in working hours for older women compared to prime aged women is somewhat smaller than the corresponding drop for older men. Moreover, older women have a significant higher probability (14.3 %) of working part-time compared to prime aged women, while the corresponding gap for men is only modest (6.7%). At the same time the participation rate of older women decreases at a slower pace, compared with younger women, than the participation rate of older men. This may indicate that **flexible working time may be conducive to higher labour market participation at an older age**.
- Rates of labour market participation correlate highly with levels of skill, i.e. the more highly skilled have higher participation rates. However, the propensity of older workers to participate in formal training is significantly lower than for younger age groups, although the difference is less pronounced with regard to non-formal training. This suggests a need to **remove barriers to learning and training and provide incentives and special programmes focussed on updating older workers' skills** through, for example, training subsidies for older workers – especially the unemployed.
- Older workers are less likely to transit from employment to unemployment than younger workers, but are more likely to stay unemployed for longer. At the same time, job search activity by

the older unemployed is significantly less intensive than in other age groups. This indicates that there is a need to prevent the unemployment of older workers (e.g. through outplacement services in case of restructuring) and to **enhance the search intensity of unemployed older workers**, particularly in Member States where there are fewer obligations on older people to search for a job when unemployed.

- A longer duration of unemployment among older workers may also indicate reluctance by employers to hire older workers due to prejudice of one sort or another. If this is the case then **fostering a change of employers' attitudes** towards older workers is a necessary step in improving the potential of older workers and fighting discrimination and perceptions of stereotypes<sup>(50)</sup>.
- Declining health, both of the worker and his/her spouse, is an important determinant in the decision of older workers to retire early. **Promoting healthy working conditions, and child care and eldercare facilities** is therefore a priority in helping to break down labour market barriers for older workers with fragile health and/or care responsibilities.
- An employed spouse has a significantly different impact on the hours worked by men and women, with women decreasing their hours worked, while men increase their hours worked. Older workers are more likely to exit the labour force if their spouse is not active. Activation policies should therefore explicitly **recognise the household dimension of active ageing**.
- Older workers have, on average, higher hourly and monthly incomes than younger workers, but they have the lowest probability of moving up to a higher

(49) For a review of national policies see Annex 2.

(50) See Department of Labour of New Zealand (s.a.) for literature review on age-discrimination.

wage level. Some would argue that **the automatic link between seniority and wage increases should be removed to avoid pricing ageing workers out of the market**<sup>(51)</sup>.

### *Simulations demonstrate the potential for revenue neutral targeted measures*

Some of the above recommendations have been tested using DG EMPL's Labour Market Model (LMM) which indicates the significance of labour market institutions and policies on Member State's employment performance. The analysis shows that the application of instruments targeted towards particular groups, such as older people, can be successful in raising the employment rate and reducing unemployment. Structural policy actions – such as those that alter the tax-benefit schemes, tackle the issue of training deficits, or change retirement eligibility conditions – all have the potential to produce positive results in a budget neutral way.

## 6. CONCLUSIONS

The working population in the EU is projected to age significantly in the coming decades while the age-dependency ratio will increase

sharply. In combination with falling fertility rates, this trend will pose a major risk to the sustainability of the European Social Model.

The Stockholm Council in 2001, and further on confirmed by the Europe 2020 Strategy, recognised that addressing these challenges required a global strategy that covers the need for Member States to reduce their public debt at a fast pace, to raise employment rates and productivity, and to reform their pensions, healthcare, and long-term care systems in a sustainable way.

This chapter explored further how older people can be encouraged and assisted to remain active longer. The main finding of this chapter, as well as the results of other studies, indicate that retirement decisions are influenced by many factors – from individual and household characteristics to macro-economic and institutional circumstances – and that interactions between these various drivers should be taken into account when policies are being formulated and implemented.

In this context, labour market policies aimed at increasing the employment of older people should be based on a balanced and integrated mix of policies that improve flexibility to acquire new skills and transit between occu-

pations, and that increase security through supporting the adaptation to a longer working life.

These various considerations indicate, then, inter alia, that more intensive personalised services – such as guidance, counselling or outplacement – to retain and reintegrate older workers back into employment are needed to reduce the duration unemployment of older workers; that policies aimed at reducing early retirement along one pathway, e.g. long-term unemployment, should be complemented by policies that focus on the other available pathways, e.g. disability pensions; that developing elderly care systems can help to mainstream the gender perspective of active ageing; that the promotion of job mobility can prevent early exits for health reasons by allowing tasks to be adjusted to people's capabilities; that labour market policies can contribute indirectly to the strengthening of active ageing through work organisation tailored towards the needs of older workers; and that structural policy actions – such as those that alter the tax-benefit schemes, change retirement eligibility conditions – all have the potential to produce positive results in a budget neutral way.

(51) See for instance Cotis (2005).

## ANNEX 1: ON THE INTERPRETATION OF THE POINT ESTIMATES REPORTED IN THE TABLES

In the notes on the tables the estimation technique used is specified. Given the estimation technique, the point estimates have to be interpreted as follows:

### *The Tobit model*

The Tobit model is an econometric model which can be used to analyse the relationship between a non-negative variable and a set of explanatory variables. An example of such a variable is the number of hours worked in the economy, which takes on positive values for someone working, but is zero for someone who is not working.

The reported coefficient  $\beta_1$  can be interpreted in the following way: an increase of input variable  $x_1$  leads to an increase in the outcome variable by  $\beta_1$  units. In the case of hours that are included as log variables, the coefficients can be interpreted such that an increase of variable  $x_1$  by one unit leads to an increase in the outcome variable by  $\beta_1$  per cent. If  $x_1$  is a dummy/indicator variable, it means that if  $x_1$  changes from 0 to 1 that leads to an increase of  $\beta_1$  units/per cent of the outcome variable.

### *The Logit and Probit Models*

The logit and probit models are obvious choices in the case of binary outcomes, i.e. outcomes that can only exhibit two values, 0 and 1. This is the case for, e.g. the participation decision (participation: 1, nonparticipation: 0), the distinction between full-time and part-time employment, and between temporary and permanent employment.

The reported marginal effects  $mf_{x1}$  can be interpreted in the following way: an increase in variable  $x_1$  by one unit leads to an increase of the dependent variable by  $mf_{x1}$  units. If  $x_1$  is a dummy/indicator variable, then if  $x_1$  changes from 0 to 1, this leads to an increase of  $mf_{x1}$  units of the outcome variable. The marginal effect is not constant but varies with the observation. The marginal effects shown in the tables are derived from the means of all variables.

In this paper the values of the estimated coefficients have to be interpreted as change in the probability that an event occurs (e.g. the transition from employment to unemployment) for a particular characteristic of the individual (e.g. male).

### *The Multinomial Logit Model*

Outcomes which follow no natural order are called nominal, e.g. Employment, Unemployment and Inactive, do not follow a specific order and are therefore nominal outcomes.

To model transitions between these outcomes econometrically, the multinomial logit model (MNL) is used. Essentially the MNL estimates a separate binary logit model for each pair of outcome categories, but takes into account the fact that the realisations of the outcomes are interrelated.

The interpretation of the parameters of the equations is the same as in the logit model. However, note that, for example in the case of Table A.2.6 on

page 185, the parameters associated with a specific characteristic add up to 0 across the four types of transition (i.e. EE, ES, EU, EI)

### *The Ordered Regression Model*

The ordered regression model (ORM) is an appropriate econometric tool for the case of ordinal outcomes. Such outcomes can be ordered, but the distances between the outcomes are not necessarily meaningful, arbitrary, or changing. This is for example the case for the anonymised variable of unemployment duration. Intuitively, an ORM measures the baseline hazard (in the example of unemployment duration, the probability of belonging to a certain duration class) as a series of dummies with no prior assumptions about the distribution and parametric form of the underlying hazard function.

The exponentiated coefficient in the tables denotes the effect of a unit increase or decrease in a variable on the odds ratio. Say, for example, that the exponentiated coefficient of a particular variable is 1.20. Then, holding everything else constant, a unit increase in this variable increases the odds of observing an outcome in a category greater than  $m$  versus less than or equal to  $m$  by 20 per cent. Accordingly, exponentiated coefficients lower than one mean that an increase in the respective variable is associated with a reduction in the odds ratio. Using this interpretation we can gain insight into which factors are important in the determination of unemployment duration and how they compare to each other size-wise.

See ISG and RWI (2010) and RWI (2011) for more details.



## ANNEX 2: A SELECTION OF ACTIVE AGEING POLICIES IN THE MEMBER STATES: NATIONAL REFORM PROGRAMMES<sup>(52)</sup>

This annex provides an update of the review of active ageing policies that were discussed at length in the 2007 Employment in Europe Report, using information from the National Reform Programmes (NRP)<sup>(53)</sup>.

In their 2011 National Reform Programmes, the Member States outlined their strategies to reinforce active ageing in the future. Although the proposed reforms reflect to a large extent national traditions and social practices, some important common developments can be distinguished.

Several Member States are planning to take initiatives to adjust the retirement age in order to take better account of increased life expectancy, even though this may not be made very explicit. For instance, in the Netherlands the government proposes to increase the retirement age by one year (from 65 to 66) by 2020. However, automatically linking the pension age to life expectancy after 2020 is not envisaged at this stage. Moreover, it should also be noted that most Member States have chosen to postpone the actual implementation of these measures far into the future, which may compromise their implementation and limit their impact on the sustainability of pension systems. For instance, in the Czech Republic the rise in the statutory retirement age only will become uniform at 67 years by 2041 for both men and women.

Some Member States will raise the official retirement age, but continue to maintain differences in statutory retirement ages between men and women. For instance, in Bulgaria the statutory retirement age for women and men will be increased only after 2021 by six months each year until reaching 63 years of age for women (2026) and 65 years of age for men (2024).

This selective review is limited to the measures which have a direct impact on employment of the older workers while ensuring the adequacy of pensions. A discussion of the effects on, for instance, growth potential and budgetary stance can be found elsewhere<sup>(54)</sup>. Nevertheless, it should be recognised that there exists an indirect link between, for instance, fiscal sustainability and active ageing, as in an unstable macro-economic environment caused by loss of confidence due to unsustainable fiscal balances, enterprises may be forced to contract their production and reduce their production costs.

Setting older employees on early retirement may be seen as the most efficient way to reduce labour cost (from the perspective of the employer) in so far as firing costs for older workers may be high. Nevertheless, the relation between active ageing and fiscal stance may also run in the opposite direction: when increasing numbers of older workers who remain in employment and retire later, the tax base expands, expenditures on pensions decrease, and the overall fiscal balance improves.

In Belgium, the federal government will focus on increasing the effective retirement age - while maintaining an appropriate pension system - by

restricting early retirement (e.g. pre-pensions) and encouraging retention of older workers in employment.

In Bulgaria the pension reform includes an increase in the statutory retirement age for women and men only after 2021 by six months each year until reaching 63 years of age for women (2026) and 65 years of age for men (2024).

In the Czech Republic the rise in the statutory retirement age will be accelerated at a faster pace so as to make it a uniform 67 years in 2041 for men and women, irrespective of the number of children. The increase in the retirement age will continue after 2041 by two months a year without a pre-determined limit. The government will not be allowed to increase pensions beyond what is possible on the basis of the current indexation rule<sup>(55)</sup>. The degree of redistribution in the pension system will be lowered by increasing the pensions of high wage earners and lowering the medium-range pensions; A voluntary second private pension pillar will be introduced in 2013.

The Danish National Reform Programme envisages a shift in the pension age from 65 to 67 years in the period 2019-2022. The voluntary early retirement pension (VERP) age will increase from 60 to 62 years in the period 2014-2017, and the VERP benefit period will be shortened from 5 to 3 years during 2018-2023. Parliament will vote every five years on raising the statutory retirement age by up to one year in line with increased life-expectancy.

In Germany, already in 2007 it was decided to gradually shift the standard retirement age for the statutory

(52) The National Reform Programmes are available at [http://ec.europa.eu/economy\\_finance/sgp/convergence/programmes/2011\\_en.htm](http://ec.europa.eu/economy_finance/sgp/convergence/programmes/2011_en.htm)

(53) These National Reform Programmes are available at [http://ec.europa.eu/economy\\_finance/sgp/convergence/programmes/2011\\_en.htm](http://ec.europa.eu/economy_finance/sgp/convergence/programmes/2011_en.htm)

(54) See for instance Martins et al. (2005) and European Commission (2009).

(55) I.e. the minimum growth in pensions is determined according to a formula that takes into account price growth (fully) and a third of real wage growth.



pension insurance to 67, starting in 2012, fully phased in for workers retiring as from 2029. Initiatives will be taken to strengthen the integration of women into the labour market, by inter alia tackling discrimination on grounds of gender over the life cycle.

In Estonia the government aims to further address the sustainability and adequacy of the pension system by modifying access to special pensions and pensions under favourable conditions, and it will decide by 2019 whether to link the retirement age to life expectancy.

In Ireland the age at which individuals qualify for the State Pension will increase to 66 years in 2014; 67 years in 2021 and 68 years in 2028. A new supplementary pension using an "auto-enrolment" system will be introduced to provide additional retirement income for employees. The Government and private sector employers will support the savings of workers by providing matching contributions, conditional on economic conditions in 2014.

In Greece several measures were implemented to reduce the public deficit, including nominal pension cuts (13th and 14th monthly payment). The pension reform bills adopted by the Parliament in July 2010 provide for very short phase-in periods for increasing retirement ages and contributory periods, and parametric changes that should significantly improve the long-term sustainability of the pension system.

In Spain, the planned pension reform includes the extension of the retirement age from 65 to 67 phased in over 15 years, the introduction of a sustainability factor thereafter linked to changes in life expectancy, an increase in the number of working years for the calculations of pensions from 15 to 25, and tougher early retirement conditions. The level of minimum pensions has been increased.

In France the National Reform Programme foresees a raise in the statutory retirement age by two years at a rate of four months a year, starting with the 1951 generation. The minimum retirement age will be 62 for people born in 1956 (age reached in 2018) and the age that qualifies for a full pension (whatever the contribution length) will be 67 for people born in 1956 (who would reach retirement age in 2023). The contribution period will be increased to 41.5 years by 2020 and continue to rise thereafter in line with life expectancy. Some workers with long careers will still be able to retire before the minimum retirement age of between 58 and 61 (under specific conditions). This opportunity will be extended to people who started to work before the age of 18. People who are disabled will be able to retire before the minimum pensionable age, at 60 (under specific conditions). Adequacy will be strengthened by increasing the compensation period (for the number of contributory years) for youth unemployment periods from 1 to 1.5 years. Women's pensions will be improved slightly by including maternity leave benefits in the reference wage for the pension calculation.

In Italy measures affecting active ageing include linking the retirement age to life expectancy as of 2015, and the postponement of access to retirement by 12 to 18 months for workers who become eligible.

In Cyprus, the government is involved in a dialogue with unions for the restructuring of the public pension system, which is to be concluded by the end of 2011.

In Latvia the various regimes and retirement ages will be reviewed, with a view to preserve future sustainability and adequacy of the three pillars of the system.

In Lithuania the government envisages to gradually increase the retire-

ment age to 65 by 2026, to review early retirement schemes (by adding financial disincentives for early retirement and rewarding late retirement), to integrate state pensions into the general scheme of social insurance, and to improve older worker participation in lifelong learning.

In Luxembourg the government plans reforms to discourage early retirement and introduce measures that link the statutory retirement age to life expectancy. However, this mechanism would only concern new pensioners and only apply to the part of the career situated after the entry into force of the reform, so it would only produce its full effect in 40 years.

In Hungary the National Reform Programme aims for a significant reduction in early retirement and disability pension schemes. Other pension reforms are primarily focussed on the budgetary implications of the pension system.

In Malta several changes in pension legislation were introduced in recent years, including allowing persons of pensionable age to continue working without losing their pension entitlements and a stricter medical assessment to qualify for invalidity pension.

The Dutch government proposed to increase the retirement age by one year (from 65 to 66) by 2020. However, automatically linking the pension age to life expectancy after 2020 is not envisaged at this stage.

In Austria, the National Reform Programme foresees to increase retirement age from 60 to 62 years in the framework of the early retirement scheme for people with long insurance records, starting in 2014; and to reform the invalidity pension law.

In Poland, the National Reform Programme makes no reference to further policy initiatives affecting active ageing apart from a general statement to increase the effective retirement age by 2015.

In Portugal the National Reform Programme stipulates primarily measures which will affect the fiscal stance, including the convergence of personal income tax deductions applied to pensions and labour income.

In Romania the National Reform Programme does not foresee major new adjustments with respect to active ageing, as comprehensive pension reform measures were already decided in 2010.

In Slovenia, the parliament has adopted a pension reform under which the statutory retirement age rises gradually from the current 63 years for men and 61 for women to 65 years, and the contribution period increases, while preserving the adequacy of pensions. However, the pension reform adopted by the parliament was subsequently rejected in a referendum. Therefore the reform will not be implemented.

In Slovakia the National Reform Programme envisages several adjustments to the pension system that would address its current shortcomings including the lack of linking the pensionable age to life expectancy.

In Finland, the Government and labour market organisations agreed in 2009 to raise the effective retirement age by a minimum of three years from the 2008 level by 2025, but measures to increase the effective retirement age still need to be put in practice.

In Sweden, in addition to earlier reforms to encourage labour force participation by older people and to improve the opportunities for older unemployed people to stay in the labour market, the qualifying time for a new start job has been temporarily shortened from twelve to six months in 2010 for people who have turned 55. A new start job is a form

of subsidised employment aimed at facilitating the employment of people who have been absent from working life for a long time.

In the United Kingdom the Government aims to provide greater opportunities for people to participate in the labour market at age 65 and beyond. The Government is phasing out the default retirement age from April 2011 and ensuring that older workers are incentivised to continue working through reduced National Insurance contributions and higher tax allowances. Employers will not be able to compulsorily retire employees who turn 65 from 1 October 2011, unless the retirement can be objectively justified. The current State Pension age for women will increase from 60 to 65 more quickly between April 2016 and November 2018, and thereafter the State Pension age for both men and women will be raised to 66 by April 2020.

## ANNEX 3: FACTOR EXTRACTION AND ROTATION IN THE PRINCIPAL COMPONENT ANALYSIS

The factors are extracted by maximising the sum of the squared factor loadings of each variable on the respective factor. Once a number of factors were extracted, it often happens that a 'rotation' will facilitate the interpretation of the factors vis-à-vis their correlation with the original

variables. That is, the initial extraction will result in factors which make the sum of the squared loadings reach its maximum. This, for example, could result in some weaker correlation of factor 1 both with variable x and variable y, which would make interpretation of factor 1 difficult. Hence, after the initial extraction of factors, further improvements can often be achieved by "shifting" factor 1 away from a certain correlation with variable x toward a strong correlation with variable y. Technically, the coordinate cross describing the logical room in which the factors are

implemented would be rotated so as to maximise the loading of factor 1 with some strongly correlated variables while minimising its loading with other variables. Hence, the structure of a factor's loadings to the original variables will be changed by rotation. The sum of the (squared) factor loading over all variables will not be changed by the rotation procedure. The procedure is known as 'varimax rotation'. For a technical description see Backhaus et al. (2008), Chapter 7.2. The methodology of PCA is also described in European Commission (2006), Chapter 2.

## ANNEX 4: SOME QUALITY ASPECTS WITH RESPECT TO THE FACTOR EXTRACTION (PRINCIPAL COMPONENT ANALYSIS)

Some original indicators do correlate the same way for more than one factor which normally would complicate factor interpretation. For example: there is a considerable positive correlation immanent in the inequality variable to both factor 2 (low safety net) and 3 (segmentation). The reader would identify more similar examples from Table 2. However, one must take account of the fact that the analysis is based on a limited number of observations (28 countries, 15 indicators), including partly using aggregate data from different sources which might be subject to some measurement variability or other data quality problems. Hence, the 23 % loss of information

on the original indicator's variability is a reasonable, albeit sub-optimal, result from a purely technical point of view. However, straightforward interpretation of the factors was possible anyway.

A set of data comprising up to 25 variables was tried out in order to shift the explanatory power. However, the explanatory power could either not be improved or the improvement went at the expense of another factor (the fifth) to be extracted following the Kaiser-criterion. However, more factors would water down the reduction of dimensions. Interpretation of the results would be even less feasible.

The same-direction correlations disclosed in Table 2 of Section 3.2 fit well into the interpretation delivered above. For example: inequality is one dimension of both segmented labour markets and social inclusion.

Moreover, a number of statistical tests resulted in the 15-variable matrix being an adequate base for a principal component analysis. Those test the hypothesis of the original variables to be correlated. Otherwise, a factor analysis would not make sense. The Bartlett-test of sphericity will deliver a close-to-100 % significance to reject the hypothesis of uncorrelated variables based on a Chi-square. The Guttman analysis of the Anti-Image covariance matrix resulted in only 18 elements out of 210 non-diagonal elements being significantly different from zero ( $>.09$  or  $<-.09$ ). This is much less than the 25 % one could still accept following *Dziuban and Shirkey*. *Meyer-Ohlin* criterion would deliver MSA (measure of sampling adequacy) of 0.55 which is still acceptable albeit not optimal. These tests are described in Backhaus et al. (2008), p. 335.

## ANNEX 5: FUSING COUNTRIES TO GROUPS IN A CLUSTER ANALYSIS (CA)

The procedure can be described as follows (Backhaus et al. (2008), p. 420): starting out from the smallest possible partition, i.e. one country, countries will be fused into groups so that the degree of heterogeneity within a group with respect to the factors would be increased the least (Ward's procedure of merging groups). Hence,

the objective is to fuse those objects which shift the variance within the group as little as possible. As a result, within the groups, homogeneity among countries with reference to the factors would be high as heterogeneity across classes. This Cluster Analysis (CA) could result in a typology of Member States, based on the relevant dimensions of ageing conditions.

Technically, the *Ward* procedure foresees  $V_g = \sum_{k=1}^{K_g} \sum_{j=1}^J (x_{kjg} - \bar{x}_{jg})^2$  to be the variance used as a criterion whether or not to merge object k with group g. The score of object k

with respect to variable j is  $x_{kjg}$  and the average across all  $K_g$  objects in group g is  $\bar{x}_{jg}$ . Object k is merged to group g if there is no other object which would increase the squared sum of mean deviations  $V_g$  by less.. The objects in our exercise are the countries and the variables  $x_{kjg}$  are the scores they have with respect to a factor. Starting from one country as the smallest possible group, another country would be merged to that group if it shifts the group's variance by less than any other country not yet merged.

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# Intra-EU labour mobility and the impact of enlargement

## 1. INTRODUCTION

The free movement of persons is one of the four fundamental freedoms guaranteed by EU law; along with the free movement of goods, services, and capital. It includes the right of EU nationals to move freely to another Member State, to take up employment, and to reside there with their family members. Despite this, geographical labour mobility between EU Member States has, until recently, remained at a low level, notably in comparison with the United States. Even so, in 2010, while only 2.8 % of the working-age (15-64) European citizens lived in another EU Member State than their own, this is notably higher than in 2004 (2.0 %) as a result of the increased intra-EU mobility that followed the 2004 and 2007 enlargements.

Before the two latest enlargements of the EU, the issue of free movements of workers was the subject of many concerns, notably the impact of enlargement and increased inflows of workers upon the economic and social situation in both the receiving and sending countries. Therefore, the Accession Treaties provided the possibility for Member States to maintain restrictions on free movement of workers for a maximum period of seven years.

These transitional arrangements were discussed in the Commission's publication 'Employment in Europe' in 2008 (European Commission, 2008a). Since the transitional arrangements for the 2004 accession countries ended on 1 May 2011, it is time to take stock of the experience of labour mobility from these countries. Moreover, some restrictions are still in place as for the Bulgarian and Romanian workers and the Member States still applying them will have to decide whether or not they are keeping them in the last two-year phase (starting on 1 January 2012).

The current chapter revisits the issue of geographical labour mobility in the context of the two latest EU enlargements, with a particular focus on the situation of Bulgarian and Romanian workers. It also examines the impact of the economic recession on labour mobility flows and the employment situation of recent intra-EU movers.

In Section 2 of the chapter, the extent and evolution of intra-EU mobility of citizens and workers is analysed in detail, with particular emphasis on mobility from EU-10 and EU-2 Member States<sup>(1)</sup> to the EU-15 Member States. The role of enlargement and the transitional arrangements is examined, and the impact of the economic recession that started in 2008 is also discussed. Section 3 covers the reasons for mobility and the evolution of push and pull factors, while Section 4 analyses in detail the characteristics of recent intra-EU movers, in particular their employment situation. The economic impact of post-enlargement mobility is examined in Section 5 while Section 6 summarises the main findings of the whole chapter.

(1) In this chapter, the following acronyms are used: EU-15 refers to the 15 Member States that formed the EU before 2004 (Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom); EU-10 refers to the 10 countries that joined the EU in 2004 (Cyprus, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Malta, Poland, Slovenia, Slovakia) and EU-8 to those to which transitional arrangements applied (all of them except Malta and Cyprus); EU-2 refers to the 2 countries that joined the EU in 2007 (Bulgaria and Romania); finally, EU-12 refers to the addition of EU-10 and EU-2 countries (therefore all the recently accessed Member States) while EU-8+2 refers to the addition of EU-8 and EU-2 countries (therefore all the recently accessed Member States except Malta and Cyprus).



## 2. INTRA-EU MOBILITY: EVOLUTION SINCE 2004, ROLE OF ENLARGEMENT AND IMPACT OF THE RECESSION

### 2.1. Free movement and transitional arrangements: the legal context

Free movement of workers was introduced with the aim of removing barriers to the functioning of a fully integrated European market economy and improving the matching of labour supply and demand. However, concerns about the consequences of the sudden shock effect of opening up the labour markets of the existing member countries have been an issue in all the enlargements where a significant income gap existed between new and old member states (1981, 1986, 2004, and 2007).

As for the two latest enlargements, concerns in the receiving countries were linked to the size of the countries that were joining the EU (more than 100 million inhabitants, increasing the total EU population by a quarter) and the large gap with the existing Member States in terms of wages or GDP per capita. Geographical proximity also played a role, notably in Germany and Austria which attracted most of the inflows of workers from the EU-12 countries in the pre-accession period. Therefore, the Accession Treaties provided the possibility for Member States to maintain restrictions to free movement of workers for a maximum of seven years (see Box 1).

In this chapter, the evolution of the number of EU mobile citizens from the EU-12 countries will be analysed, notably against the background of the transitional arrangements that have been applied to EU-8 and EU-2 workers. Tables 1 and 2 show the

**Table 1: Date of granting access to the labour market to EU-8 workers**

Date	EU-15 Member States
May 2004	IE, SE, UK*
May 2006	EL, ES, PT, FI
July 2006	IT
May 2007	NL
November 2007	LU
July 2008	FR
May 2009	BE, DK
May 2011	AT**, DE**

*Source:* Directorate-General for Employment, Social Affairs and Inclusion

*Note:* As far as the EU-8 Member States were concerned, the three phases of the transitional arrangements were as follows: 1st phase from 1 May 2004 to 30 April 2006; second phase from 1 May 2006 to 30 April 2009; third phase from 1 May 2009 to 30 April 2011. \*UK: access but with mandatory worker registration scheme; \*\*DE and AT: with restrictions also on the posting of workers in certain sectors.

**Table 2: Date of granting access to the labour market to EU-2 workers**

Date	EU-25 Member States
January 2007	CZ*, EE, CY, LV, LT, PL, SI, SK, FI, SE
January 2009	EL, HU, PT, ES**
May 2009	DK
Still applying restrictions as of November 2011...	BE, DE***, FR, IE, IT, LU, MT, NL, AT***, UK

*Source:* Directorate-General for Employment, Social Affairs and Inclusion

*Note:* As far as the EU-2 Member States were concerned, the three phases of the transitional arrangements were as follows: 1st phase from 1 January 2007 to 31 December 2008; second phase from 1 January 2009 to 31 December 2011; third phase from 1 January 2012 to 31 December 2013.\* CZ: still under national law; \*\*ES: restrictions for workers from Romania (from July 2011); \*\*\*DE and AT: with restrictions also on the posting of workers in certain sectors.

gradual opening of the labour market of the 'old Member States' to the acceding countries. It is clear that more EU-15 countries have kept restrictions to free movement of EU-2 workers until the third phase, compared with EU-8 workers. This difference may be linked to the fact that the income gap with EU-2 countries (compared to EU-15) was much larger than for EU-8 countries – but also to the timing of the decisions by the Member States in relation to the economic crisis that affected the EU from 2008.

The case of the UK and Ireland is outstanding: while they opened their labour market to EU-8 workers from the accession date (1 May 2004), for the EU-2 workers they kept restrictions during the two first phases. According to Wright (2010) this is explained by the significant and unexpected inflows of EU-8 workers into these countries during 2004-2006 as a result of the early opening of their labour markets, and the wish to avoid, once again, being almost the only EU-15 Member States to do so.

It should, however, be noted that the labour market of most Member States not yet applying EU law on free movement of workers to EU-2 nationals (last category in Table 2) are not fully closed. Those Member States that maintain restrictions on labour market access apply a variety of national measures that result in legally different regimes for access to the labour markets. Some apply full work permit schemes while others have simplified procedures or eased conditions, e.g. by not requiring work permits for occupations in certain sectors or by exemptions from labour market tests<sup>(2)</sup>. A noteworthy example is Italy which no longer requires work permits for employment in several key sectors such as: agriculture, hotel and tourism, domestic work, care services, construction, engineering, managerial and highly skilled work, as well as seasonal work.

(2) More information on individual national measures available at <http://ec.europa.eu/eures>.

**Box 1: Transitional arrangements on the free movement of workers**

EU law on free movement of workers guarantees the right of EU nationals to move freely to another Member State, to take up employment, and to reside there with their family members. This freedom precludes Member States from directly or indirectly discriminating against EU workers and their families, on the basis of nationality, in employment related matters such as conditions of work and employment, remuneration and dismissal. It also ensures equal treatment as regards public housing, tax advantages, and social advantages.

The Accession Treaty of Bulgaria and Romania does, however, allow Member States to temporarily restrict the free movement of Bulgarian and Romanian workers. Such 'transitional arrangements' for the free movement of workers have applied in most of the EU's enlargements. The current transitional arrangements cover three distinct phases according to a 2+3+2 formula, with different conditions applying during each phase:

- For an initial two-year period, the national law of the other Member States regulates the access of Bulgarian and Romanian workers to their labour markets. At the end of this first phase, the Council reviews the functioning of this first phase on the basis of a report from the Commission.
- Member States can extend their national measures for a second phase of three years by notifying the Commission before the end of the first phase; otherwise EU law granting free movement of workers applies.
- A Member State can maintain restrictions for a final third phase of two additional years only after notifying the Commission of a serious disturbance of its labour market or threat thereof.

The transitional arrangements end irrevocably seven years after accession - that is on 31 December 2013. These restrictions can only be applied to workers but not to the self-employed and other categories of EU citizens. They only apply to obtaining access to the labour market in a particular Member State. Once a worker has been admitted to the labour market of a particular Member State, EU law on equal treatment applies as regards remuneration, other employment-related matters, and access to social and tax advantages. This means that no discrimination on the grounds of nationality in these matters is allowed between legally employed workers, regardless of the EU Member State from which they come. Moreover, and notwithstanding these restrictions, a Member State must always give preference to Bulgarian and Romanian workers over those who are nationals of a non-EU country with respect to access to the labour market. As no transitional arrangements are in place for the application of EU law on the coordination of social security schemes, Bulgarian and Romanian workers also benefit fully from equal treatment in this regard.

Ten Member States opened their labour markets for workers from Bulgaria and Romania from the date of accession: Czech Republic<sup>(1)</sup>, Estonia, Cyprus, Latvia, Lithuania, Poland, Slovenia, Slovakia, Finland, and Sweden (see also Table 2 below). After the end of the first two-year period and the Commission's 2008 report on the functioning of the first phase of the transitional arrangements<sup>(2)</sup>, four more Member States (Greece, Spain, Hungary, and Portugal) opened their labour markets as of 1 January 2009, followed by Denmark on 1 May 2009. Presently, ten Member States (Belgium, Germany, Ireland, France, Italy, Luxembourg, Malta, Netherlands, Austria, and UK) maintain their work permits system for Bulgarian and Romanian workers, albeit in some cases with modifications to the conditions and procedures that applied to them prior to EU accession. Those Member States that still apply restrictions by the end of December 2011 may maintain them for 2 more years only if they notify the Commission by then of a serious disturbance of the labour market, or threat thereof.

In addition, a safeguard clause allows a Member State that has stopped using national measures and applies EU law on the free movement of workers, before the end of the overall transitional period, to re-introduce restrictions if there are serious disturbances of the labour market, or threat thereof. At the end of July 2011, Spain requested a temporary suspension of free movement of workers for Romanian workers, arguing that the country was affected by strong labour market disturbances (strong decline in employment and unemployment rate over 20 %) and a slow economic recovery. The Commission authorised this suspension through a decision of 11 August 2011<sup>(3)</sup>.

(1) Different from the other Member States that have been applying EU law on free movement of workers from 1 January 2009, the Czech Republic is still opening its labour market under national law

(2) COM(2008)765 (European Commission, 2008b).

(3) Commission Decision 2011/503/EU of 11 August 2011, OJ L 207, 12 August 2011, p. 22.

While the main focus of this chapter is the extent and impact of increased labour mobility resulting from the 2004 and 2007 enlargements on both sending and receiving countries, data on mobile citizens from EU-15 countries (and sometimes third-country nationals) is also presented to provide a global picture of all labour mobility flows, and to allow comparisons to be made.

## 2.2. The receiving countries' perspective

### 2.2.1. Overall stocks of EU foreigners resident in the EU Member States

From the data point of view, monitoring intra-EU mobility is difficult (see details in Annex 1). However, it is possible to draw estimates, based

on migration and population statistics (and the EU-Labour force survey where necessary) concerning the stock of foreign nationals resident in each of the 27 EU Member States (see Tables 3 and 4<sup>(3)</sup>), and the share they represent of the total population in the receiving country.

(3) Tables 3 and 4 depict the evolution of the number of all foreign nationals, with or without attachment to the labour market, including young people (aged less than 15) as well as older ones (65 and over).

The number of nationals from EU-10 Member States living in EU-15 Member States has increased from around 930 000 at the end of 2003 to 2.5 million in 2010, with the fastest growth occurring between the end of 2004 and the end of 2007 (average net inflow around 350 000 per year).

As far as nationals from EU-2 Member States are concerned, their total number in the EU-15 Member States increased from around 700 000 at the end of 2003 to a little over 2.7 million in 2010<sup>(4)</sup>. In this case the largest net inflows took place in the first two years of accession (a rise close to one million between the end of 2006 and the end of 2008), though some part of this increase is accounted for by persons who had been living for some years in the destination country, and only declared themselves later (see Chart 4 and Section 2.4).

While those figures appear significant in absolute terms, in relative terms EU-10 nationals only represented around 0.6% of the total

population of EU-15 countries in 2010 (compared to 0.2% in 2003) with a similar evolution for EU-2 nationals (from 0.2% to 0.7% in 2010). These shares are well below those from the EU-15 mobile citizens (1.8% of total population in 2010) and from third-country nationals (4.7%).

Concerning individual Member States, the countries with most EU-10 foreigners are: the UK (945 000) and Germany (605 000, among which a significant proportion was already there before 2004), followed by Ireland, Italy, Spain, and Austria. EU-2 foreigners are highly concentrated in two countries, Italy and Spain (around one million each), followed by Germany (around 200 000), and the UK (almost 125 000).

In relative terms, Ireland is the country with the highest share of EU-10 nationals in the total population: 4% in 2010 (though down from 4.7% in 2008), followed by the UK (1.5%), and Austria (1.3%). EU-2 nationals represent 2.2% of

the total population in Spain (up from 0.6% in 2003), and 1.8% in Italy (up from 0.3% in 2003) but their share is highest in Cyprus at 4.1% - a significant increase from 0.7% at end 2006. Finally, EU-15 nationals represent a large part of the population in Luxembourg (around 38%), but also in Cyprus (6.3%), and Belgium (5.1%).

As far as EU-10 countries are concerned, they have not recorded a significant increase in the number of EU foreigners since their accession and the share of third-country-nationals within the total population, despite being relatively low (1.6% on average) largely exceeds the share of all EU foreigners (0.6%). In addition to Cyprus, the EU-10 Member States recording a significant number of EU foreigners are Hungary, the Czech Republic, and Slovakia. Finally, Hungary is the only Central and Eastern European country to include a significant number of EU-2 nationals (80 000 in 2010), mostly Romanians.

(4) As for the impact of enlargement on the mobility of EU-2 citizens, the receiving countries to be considered are the other 25 EU Member States. However, as more than 95% of the net inflows of EU-2 citizens (in the period 2003-2010) have been towards EU-15 countries and in order to simplify the text, it is often only the EU-15 aggregate that will be used as the main receiving zone of EU-2 mobile citizens (rather than EU-25).

Table 3: Share of foreign nationals resident in the EU-27 by broad group of citizenship, 2003-2010 (% of total population)

Host country	EU-15 Member States										Resident foreign nationals from...										Non-EU-27 countries												
	EU-15 Member States										EU-10 Member States					EU-2 Member States					Non-EU-27 countries												
	2003	2004	2005	2006	2007	2008	2009	2010	2003	2004	2005	2006	2007	2008	2009	2010	2003	2004	2005	2006	2007	2008	2009	2010	2003	2004	2005	2006	2007	2008	2009	2010	
	% of total resident population																																
BE 1)	4.8	5.2	5.2	4.9	5.0	5.2	5.2	5.1	0.1	0.1	0.2	0.2	0.2	0.4	0.4	0.5	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.4	2.1	2.5	2.4	2.4	2.8	2.9	2.8	2.6	
DK	1.0	1.1	1.1	1.1	1.2	1.3	1.3	1.5	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.5	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	3.8	3.7	3.6	3.6	3.7	3.8	3.9	4.3	
DE	2.2	2.0	2.0	2.2	2.1	2.1	2.1	2.1	0.6	0.5	0.6	0.7	0.7	0.8	0.7	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	5.9	6.2	6.1	5.8	5.8	5.7	5.6	5.6	
IE 2)	3.3	3.2	3.6	3.6	3.6	3.8	3.3	2.7	0.8	1.2	2.4	3.7	4.8	4.7	4.1	4.0	-	-	-	0.3	0.4	0.4	0.4	0.3	2.7	2.9	2.8	3.1	3.3	3.4	3.1	2.8	
EL 1)	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.8	0.7	3.7	4.1	4.2	4.3	4.9	5.5	6.4	6.2	
ES	1.3	1.5	1.7	2.2	2.4	2.6	2.6	2.9	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.6	0.9	1.1	1.5	2.0	2.1	2.2	2.2	4.6	5.3	6.1	6.4	7.0	7.4	7.3	6.9	
FR 1)	1.8	1.8	1.6	1.8	1.9	1.8	1.8	1.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	2.8	2.9	2.9	2.8	3.2	3.1	3.3	3.4	
IT	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.5	0.6	1.1	1.4	1.5	1.8	2.8	3.3	3.6	3.9	4.2	4.6	5.0	5.6	
LU 1)	34.7	34.7	36.2	35.6	37.3	37.5	38.3	37.9	0.3	0.2	0.2	0.6	0.8	0.6	1.0	0.8	-	0.2	-	-	-	-	-	0.6	3.4	3.8	3.0	3.3	3.4	3.6	4.2	3.6	
NL	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	
AT	1.5	1.6	1.7	1.9	2.0	2.2	2.2	2.3	0.7	0.8	0.9	1.0	1.0	1.1	1.2	1.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	6.7	6.7	6.7	6.5	6.6	6.6	6.5	6.6	
PT 1)	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.2	1.8	2.0	2.3	2.2	2.7	2.7	2.9	2.8	
FI	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.5	1.6	1.7	1.8	1.9	
SE	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	3.0	3.0	2.9	2.9	3.1	3.2	3.5	4.1	
UK 1)	1.6	1.6	1.7	1.6	1.6	1.7	1.7	1.7	0.2	0.3	0.5	0.8	1.2	1.2	1.2	1.5	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	3.0	3.2	3.4	3.7	3.9	4.2	4.0	3.7	
EU-15	1.5	1.5	1.6	1.7	1.7	1.7	1.7	1.8	0.2	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.2	0.2	0.3	0.3	0.5	0.6	0.7	0.7	3.7	4.0	4.1	4.2	4.4	4.5	4.6	4.7	
CZ	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.3	0.5	0.5	0.7	0.8	0.9	0.9	0.9	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.2	1.2	1.6	1.8	2.1	2.5	2.7	2.6	
EE 1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.3	18.1	16.2	15.6	16.1	16.3	16.0	15.0	
CY 1)	-	5.8	5.6	5.9	5.4	6.4	5.8	6.3	-	0.1	0.2	0.4	0.3	0.5	0.5	0.7	-	0.5	0.7	0.7	1.6	2.0	3.2	4.1	-	4.8	4.7	4.8	5.7	6.2	6.0	6.5	
LV	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	20.9	19.7	18.7	17.9	17.5	17.0	16.0	
LT	-	0.0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	1.1	1.2	1.2	1.0	0.8
HU	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.4	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.6	0.6	0.6	0.6	0.7	0.8	0.8	1.2		
MT 1)	1.5	1.3	0.9	0.9	1.1	1.1	1.2	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	1.3	1.5	1.4	0.9	1.2	1.9	1.6	
PL 1)	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
SI	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-	2.2	2.1	2.3	2.5	3.2	3.3	3.8	5.0		
SK	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.6	
EU-10	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.6	
BG 1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	
RO 1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.1	0.1	0.1	0.0	-	-	
EU-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	0.1	-	-	
EU-27	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.4	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.5	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.6	3.1	3.4	3.5	3.5	3.7	3.8	3.9	3.9	

Sources: Eurostat migration statistics (migr\_pop1ctz), supplemented by Eurostat EU LFS, national data sources and DG Employment estimates (see notes below).

"-" figures not available. "n/a" figures not reliable. Note: Choice of data sources according to data availability for individual countries. — For population stock data from migration statistics: end of year data (1 January of subsequent year) for LFS: 4th quarter data. — Figures not fully comparable between Member States due to the use of different sources. For this reason EU totals and sub-totals (which include estimates also for those countries that are not shown individually) are only of an indicative nature.— Data from the LFS should be treated with some caution due to limitations of the survey with regard to foreign populations, in particular concerning coverage of very recent migrants and collective households, relative levels of non-response and small sample sizes. — Figures for 2010 are DG EMPL estimates based on EU LFS. 1) EU LFS quarterly data, 4th quarter. 2) EU LFS quarterly data (4th quarter) except for 2003-2005: LFS estimates obtained from CSO.

Table 4: Number of foreign nationals resident in the EU-27 by broad group of citizenship, 2003-2010 (in 1 000)

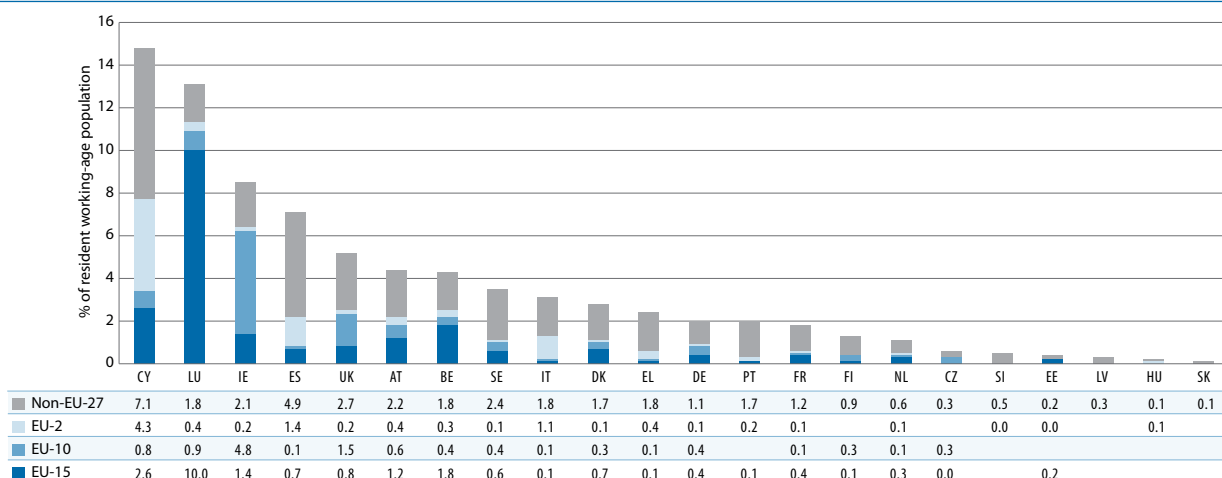
Host country	Resident foreign nationals from...															EU-2 Member States										Non-EU-27 countries										
	EU-15 Member States					EU-10 Member States					EU-2 Member States					Non-EU-27 countries																				
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034				
1 000 persons																																				
BE 1)	494	539	545	523	533	562	567	562	562	562	13	15	17	19	23	40	49	55	4	6	10	16	19	19	27	41	220	260	250	254	303	308	306	289		
DK	56	57	59	63	68	73	75	85	10	11	13	16	22	30	33	33	33	30	2	2	2	2	3	5	7	14	203	198	196	197	205	211	214	239		
DE	1850	1660	1654	1783	1779	1761	1746	1742	482	440	483	564	596	605	616	605	616	605	133	113	112	120	141	158	178	206	4861	5076	5032	4789	4740	4655	4585	4540		
IE 2)	129	130	148	153	159	169	149	123	33	47	100	161	211	211	211	211	183	180	-	-	-	13	18	18	19	14	109	117	117	132	146	151	137	124		
EL 1)	19	24	27	28	26	27	27	29	25	32	29	29	34	37	27	37	27	23	32	41	47	48	56	70	88	82	396	436	450	461	522	597	695	673		
ES	538	644	765	982	1096	1173	1197	1361	43	56	71	103	127	137	140	137	140	137	254	371	490	664	890	964	991	1006	1937	2301	2676	2857	3149	3377	3336	3205		
FR 1)	1034	1076	960	1062	1128	1102	1122	1147	40	45	39	42	42	41	46	41	46	77	21	14	14	30	38	61	39	87	1673	1702	1747	1711	1912	1867	1997	2108		
IT	134	138	143	149	158	165	169	183	56	69	81	95	118	130	138	130	138	153	189	264	315	362	659	837	934	1069	1611	1931	2132	2333	2498	2760	2994	3366		
LU 1)	154	155	163	163	173	175	185	186	1	1	1	3	4	3	5	4	5	4	-	1	-	-	1	-	-	3	15	17	14	15	16	17	20	18		
NL	211	210	210	211	215	226	233	185	13	18	23	29	37	48	59	81	59	81	4	5	5	5	11	16	19	20	371	369	361	353	344	347	341	358		
AT	122	132	143	154	167	181	187	197	60	68	75	81	87	94	97	94	97	105	26	28	28	28	35	41	45	46	546	547	549	542	545	547	548	557		
PT 1)	38	45	37	40	41	43	37	31	-	-	-	-	-	-	-	-	-	-	10	8	13	14	27	15	25	20	185	213	241	236	283	288	308	296		
FI	19	19	20	21	22	23	23	22	16	17	18	21	24	28	31	39	1	39	1	1	1	1	1	2	2	1	72	72	72	75	86	90	99	101		
SE	186	186	186	188	192	196	197	187	21	23	27	34	43	51	58	61	3	61	3	3	3	3	6	9	11	17	266	269	264	267	284	292	325	385		
UK 1)	951	929	1002	962	957	1007	1044	1016	115	171	293	503	691	728	720	945	13	21	29	35	40	74	90	124	1744	1914	2014	2191	2358	2521	2458	2262	2262			
EU-15	5936	5943	6061	6481	6714	6881	6958	7056	929	1012	1272	1701	2061	2185	2203	2498	693	877	1070	1344	1945	2290	2476	2749	2920	3290	3749	4208	4542	4617	4641	47391	48028	48361	48521	
CZ	13	15	19	24	33	37	32	31	50	51	68	78	90	99	99	94	81	6	6	7	7	7	8	10	10	6	126	122	164	186	216	262	287	269		
EE 1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	246	244	217	209	216	218	214	201		
CY 1)	-	42	41	44	41	49	45	48	-	1	2	3	2	4	4	4	6	-	4	5	5	5	13	15	25	31	-	35	35	35	43	47	46	50		
LV	1	1	2	2	3	3	3	2	3	3	4	4	5	5	5	5	4	0	0	0	0	0	1	1	1	1	511	482	451	427	408	395	382	357		
LT	-	1	1	1	1	1	1	-	-	1	1	1	1	1	1	1	1	-	-	0	0	0	0	0	0	0	0	31	31	31	37	40	39	35		
HU	12	10	18	25	25	31	34	42	5	4	7	8	8	12	11	19	57	69	69	67	68	67	68	74	80	56	62	64	67	76	77	81	115			
MT 1)	6	5	4	4	4	5	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	6	6	6	4	5	8			
PL 1)	-	10	17	12	10	7	10	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	20	49	37	24	21	31		
SI	1	1	2	2	2	3	3	5	0	0	1	1	1	1	1	1	1	2	0	0	0	0	1	1	1	-	43	43	46	51	65	66	78	103		
SK	3	3	5	7	9	11	13	15	9	8	9	11	13	15	19	23	3	3	1	1	1	1	4	6	7	7	15	10	11	13	15	20	24	35		
EU-10	37	88	109	121	130	146	145	160	68	68	93	109	122	141	141	141	138	66	81	81	82	93	101	118	125	125	1000	1050	1046	1080	1119	1152	1176	1195		
BG 1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	9	10	8	9	10	13	6		
RO 1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	15	24	25	11	-	-		
EU-27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	25	32	34	21	-	-	
EU-27	5973	6030	6170	6602	6843	7027	7103	7217	997	1081	1365	1810	2183	2326	2344	2636	759	958	1150	1426	2039	2392	2594	2874	3292	3749	4208	4542	4617	4641	47391	48028	48361	48521		

Sources: Eurostat migration statistics (migr\_pop1ctz), supplemented by Eurostat EU LFS, national data sources and DG Employment estimates (see notes below).

"-" figures not available. "-" figures not reliable. Note: Choice of data sources according to data availability for individual countries. — For population stock data from migration statistics: end of year data (1 January of subsequent year), for LFS: 4th quarter data. — Figures not fully comparable between Member States due to the use of different sources. For this reason EU totals and sub-totals (which include estimates also for those countries that are not shown individually) are only of an indicative nature— Data from the LFS should be treated with some caution due to limitations of the survey with regard to foreign populations, in particular concerning coverage of very recent migrants and collective households, relative levels of non-response and small sample sizes. — Figures for 2010 are DG EMPL estimates based on EU LFS. 1) EU LFS quarterly data (4th quarter). 2) EU LFS quarterly data (4th quarter). LFS estimates obtained from CSO.



Chart 1: Working-age foreign nationals resident for seven years or less by Member State, 2010 (in % of total resident working-age population)



Source: DG EMPL calculations based on Eurostat, EU LFS, annual data.

Note: Numbers for missing data and countries too small to be reliable. Limited reliability for EU-15 results for EL and EE; EU-2 results for LU; and non-EU-27 results for EE and SK.

## 2.2.2. Recently arrived working-age movers

As well as looking at the overall 'stocks' of foreign citizens it is also interesting, in order to measure the impact of recent enlargements, to analyse the share of recently arrived persons in the total working-age population<sup>(5)</sup>. This has been done with respect to foreign nationals who arrived within the past seven years, i.e. since the 2004 enlargement<sup>(6)</sup> (see Chart 1). Those individuals are referred as 'recent intra-EU movers' in this chapter.

The following observations can be made:

- Recently arrived foreign nationals represent more than 10% of the working-age population in Cyprus and Luxembourg, between 5-10% in Ireland, Spain, and the UK and around 4% in Austria, Belgium, and Sweden.
- In a majority of Member States, the number of recent arrivals from non-EU countries exceeds the number

Table 5: Breakdown by citizenship of recent intra-EU movers in the EU Member States receiving the highest inflows, 2010 (%)

	UK	ES	IT	DE	FR	IE	BE	AT	EU-27
1	PL 40	RO 54	RO 81	PL 32	PT 23	PL 46	FR 26	DE 43	RO 27
2	LT 7	UK 10	PL 7	NL 8	UK 14	LT 13	NL 17	RO 15	PL 21
3	RO 6	BG 9	BG 4	RO 8	RO 14	UK 12	PL 12	PL 12	DE 5
4	FR 5	IT 7	DE 1	FR 7	BE 11	LV 6	IT 10	SK 8	BG 5
5	PT 4	PT 6	FR 1	AT 7	PL 8	SK 4	RO 9	HU 5	FR 5
6	DE 4	DE 4	UK 1	IT 6	DE 8	RO 3	DE 5	IT 4	UK 5
7	IE 4	PL 3	ES 1	BG 6	NL 7	DE 2	BG 4	BG 3	PT 4
8	LV 4	FR 3	NL 1	HU 3	ES 4	FR 2	ES 3	NL 2	IT 4
9	IT 4	NL 2	CZ 0	UK 3	IT 4	HU 2	UK 3	UK 2	NL 3
10	HU 3	BE 1	SK 0	EL 3	BG 2	ES 2	PT 3	CZ 1	LT 3
Other EU	19	3	2	19	5	7	8	5	18

Source: DG EMPL calculations based on Eurostat, EU LFS, annual data.

Table 6: Main receiving countries of largest groups of recent intra-EU movers, 2010 (%)

Citizenship of recent intra-EU movers	By main EU destination country (%)					
RO	IT	41	ES	37	UK	6
PL	UK	51	DE	18	IE	11
DE	AT	26	UK	21	ES	13
BG	ES	32	UK	15	DE	13
FR	UK	27	BE	27	DE	16
UK	ES	38	FR	18	IE	14
PT	FR	32	UK	27	ES	25
IT	ES	31	UK	24	DE	17
NL	DE	29	BE	24	UK	15
LT	UK	59	IE	22	DE	6
Other EU citizens	UK	40	DE	19	FR	7
All recent intra-EU movers	UK	27	ES	18	IT	13

Source: DG EMPL calculations based on Eurostat, EU LFS, annual data

(5) From a labour market perspective, it is indeed more relevant to focus on the working-age population (15-64) and EU LFS data allow for such breakdown; whereas Eurostat migration statistics, the main source in Table 3 and 4, are not broken down by age class for all Member States (see also Annex 1).

(6) In order to fully cover EU movers having arrived since the accession of EU-10 Member States took place (on 1 May 2004), it is safer to consider, for the reference year 2010, a duration of residence of 'seven years and less' rather than 'six years and less' (which would run the risk to exclude part of the flows that took place during 2004).



of newcomers from other Member States, with the exception of Luxembourg and Belgium (due to inflows of EU-15 nationals), Ireland (a large receiver of EU-10 citizens), and Cyprus (where the number of EU-2 nationals increased rapidly in the last few years).

- Recently arrived working-age citizens from EU-10 countries represent a significant share of the working-age population in Ireland (close to 5 %), followed by UK (1.5 %), and between 0.5-1 % in Luxembourg, Cyprus, and Austria. In the other countries, the share represented by recently arrived EU-10 working-age nationals is small.
- Recently arrived EU-2 nationals represent a significant share of the working-age population only in Cyprus (4.3 %) and to a certain extent in Spain (1.4 %) and Italy (1.1 %) – though the shares of recently arrived non-EU nationals are much higher (respectively 7.1 %, 4.9 %, and 1.8 %).

At the aggregate level, Romanians (27 %) and Poles (21 %) constitute almost half of all recent intra-EU movers, followed by German, Bulgarian, French and UK citizens, each accounting for around 5 % of the total (see Table 5, last column). Portuguese, Italian, Dutch, and

Lithuanian citizens represent around 3-4 % of the total. This breakdown varies considerably between receiving countries, Poles constituting the largest group in the UK, Germany, and Ireland, while Romanians are by far the most important in Spain (54 %) and Italy (81 %).

The three main receiving countries of recent intra-EU movers have been the UK (27 %), Spain (18 %), and Italy (13 %); see Table 6 (last row). The UK has also been the main destination for Polish, French, and Lithuanian recent working-age movers, and the second one for German, Bulgarian, Portuguese, and Italian. Italy and Spain have mainly been the major destinations for Romanian working-age movers (almost 80 % of them choosing one of these two countries).

## 2.3. The sending countries' perspective

The issue of intra-EU labour mobility also needs to be considered from the point of view of the sending countries. In the case of the EU-10 and EU-2 Member States, the population outflows since accession (and even in the period before) constitute an important loss of population which has sparked concern about their growth potential, demographic balance, public finances, and the risk of a brain drain (discussed in Section 5).

Using the population stock estimates presented in Table 4, it appears that the net outflows<sup>(7)</sup> from EU-10 countries to the EU-15 were close to 1.6 million over the period 2003-2010, representing 2.1 % of the population of EU-10 countries (measured in 2003). The situation of EU-2 countries is far more striking, with net outflows to the EU-25 around 2.1 million over the same period, and representing over 7 % of their population.

Holland et al., 2011, have estimated cumulated net outflows for each individual EU-8 and EU-2 countries (see Table 7) for the period 2004-09. The largest rate of net outflows are found in Romania (7.3 %), followed by Lithuania (4.2 %), and Bulgaria (3.4 %). Latvia, Poland, and Estonia also registered significant outflows relative to their population. There is a clear correlation between these 'mobility rates' of the sending countries and their relative income level which is discussed in Section 3 (drivers of mobility).

From a labour market perspective, it is useful to focus on mobility rates calculated among the working-age population (15-64) using the Labour force survey data. Mobility rates by sending country (defined as the working-age persons living in another Member State as a share of the population of country of citizenship) show important differences with high-mobility countries and low-mobility countries (see Chart 2). Putting

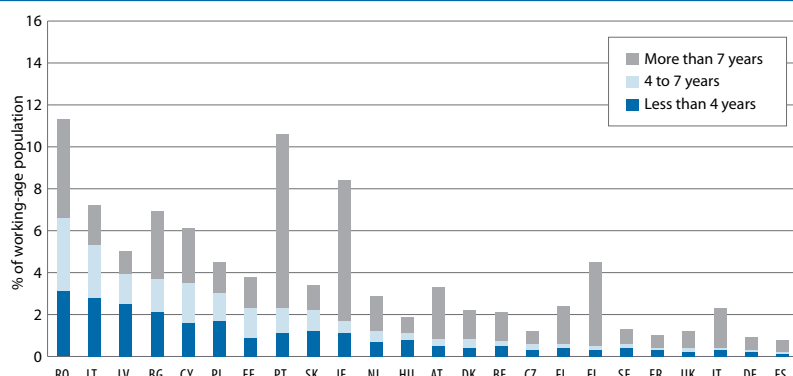
Table 7: Population net outflows to the EU-15, 2004-2009 and share in domestic population (in %)

Countries	Net outflows in thousand	Share in 2004 domestic population (in %)
CZ	31	0.3
EE	31	2.3
LV	58	2.5
LT	143	4.2
HU	60	0.6
PL	917	2.4
SI	7	0.3
SK	100	1.9
<b>EU-8</b>	<b>1346</b>	<b>1.8</b>
BG	266	3.4
RO	1587	7.3
<b>EU-2</b>	<b>1852</b>	<b>6.3</b>

Source: Holland et al. (2011). Note: In this study, the estimates are based on Eurostat migration statistics completed with other sources when necessary.

(7) The figures presented here correspond to the net growth of the stock of EU-10 and EU-2 nationals living in EU-15 Member States. They are not strictly speaking 'net outflows' since they include natural evolution (births, deaths) of the population of EU-10 and EU-2 nationals living in EU-15 Member States. However, they are referred as 'net outflows' in this chapter for sake of simplification. Since the share of individuals below 15 or above 64 in the population of EU-10 and EU-2 nationals living in EU-15 Member States is limited, the net growth of the stock of EU-10 and EU-2 nationals living in EU-15 Member States can be considered as a good proxy of the 'net outflows' from EU-10 and EU-2 Member States to EU-15. The same reasoning holds for so-called 'net inflows' to the EU-15.

**Chart 2: Mobility rates by sending country – mobile EU citizens living in another EU Member State, by years of residence (age group 15-64, 2010, in % of working-age population of country of citizenship)**



Source: DG EMPL calculations based on Eurostat, EU LFS, annual data

Note: figures do not include citizens who were born in another Member State and continue living there. Figures for LU, MT, and SI are too small to be reliable.

aside the Portuguese and Irish migration (which occurred towards other EU-15 countries and, for the most part, a long time ago), the most mobile citizens come from EU-2 and EU-10 countries:

- Romanians have by far the highest mobility rate (more than 11%), even when considering only the last seven years (more than 6%);
- Lithuania, Latvia, and Bulgaria have also seen more than 5% of their working-age population move to another EU Member State;
- Poland's mobility rate is lower (4.4%) but remarkable considering its large population and compared to the other large EU countries which have some of the lowest rates of mobility.

The mobility rates of working age persons presented here generally match the picture drawn from population statistics, which includes all age groups.

Finally, as far as EU-2 intra-EU movers are concerned, it should be noted that 80% of them are Romanians and 20% Bulgarians, reflecting the differences in the population size of the origin countries but also the greater tendency for Romanians (than Bulgarians) to move to other countries.

## 2.4. Impact of enlargement on mobility flows

As shown above, the 2004 and 2007 enlargements have led to significant increases in geographical labour mobility within the EU. It is easy to assume that these flows are essentially due to the accession of the EU-10 and EU-2 countries to the EU and the resulting employment opportunities in the EU-15 countries (depending on the transitional arrangements in place). However, it is worth noting that there was a pre-existing stock of EU-10 and EU-2 citizens in each of the EU-15 economies prior to the enlargements; that those stocks had been rising over time; and that part of the inflows since 2004 would have happened even in the absence of freer access to EU-15 labour markets following accession.

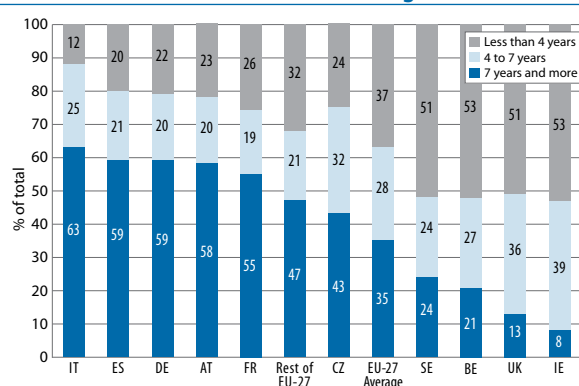
In order to quantify the macro-economic impact of the population movements directly related to the EU enlargements, Holland et al. (2011) estimated the population flows that might have occurred in the absence of the enlargements. This 'counter-factual scenario' is based on the assumption that the emigration from the EU-8/EU-2 would have continued at the same rate as in the preceding years<sup>(8)</sup>.

(8) For more details on the methodology used and the results by individual country, see Holland et al. (2011), Section 3.5 "Quantifying the impact of the EU enlargements".

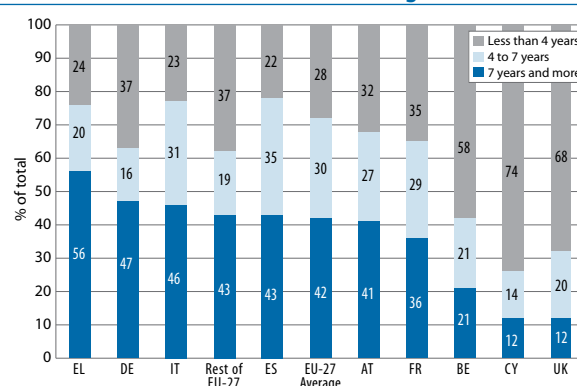
The same method had been used before for the counter-factual analysis reported by Baas, Brucker, Hauptmann, and Jahn (2007) and also by Barrell et al. (2009). Assuming that any additional migration since accession (over and above the average emigration rate in the five years prior to accession) is attributable to the accession process itself, the results suggest that about 75% of the population flows from the EU-8 since 2004 and 50% of the flows since 2007 in the case of EU-2 can be attributed to accession to the EU.

The impacts calculated by Holland et al. (2011) across both sending and receiving countries show major differences between countries: for instance, only 10% of the population flows from EU-10 countries to Germany in the period 2004-2009 can be attributed to the enlargement, compared to close to 90% in the UK, Sweden, and the Netherlands. As for EU-2 nationals, Holland et al. (2011) concluded that there was no impact of the 2007 accession on population flows to France or Germany while more than 75% of flows from the EU-2 to Sweden, the Netherlands, and Denmark in the period 2007-2009 can be attributed to the 2007 enlargement. These variations are partly explained by differences in the degree of 'openness' of their labour markets to workers from EU-10 and EU-2 countries (see Box 2 on the impact of the transitional arrangements on mobility flows).

In addition to the fact that the impact of enlargement on mobility flows has been less substantial than one would expect, the data source used to monitor post-accession mobility (i.e. mainly: population statistics) can give a somewhat biased picture of the situation, notably in terms of the timing of the 'migration'. Indeed, it appears, for several countries that the enlargement (or the end of restrictions regarding employment) led to a regularisation of foreign citizens from EU-10 or EU-2 citizens already living in the country before, and therefore a delayed inclusion in the population

**Chart 3: Distribution of working-age (15-64) EU-10 citizens by duration of residence in main receiving countries, 2010**

Source: DG EMPL calculations based on Eurostat, EU LFS, annual data

**Chart 4: Distribution of working-age (15-64) EU-2 citizens by duration of residence in main receiving countries, 2010**

Source: DG EMPL calculations based on Eurostat, EU LFS, annual data

statistics. For instance, an analysis of recent data concerning EU-2 nationals living in Spain (Holland et al., 2011<sup>(9)</sup>) indicates that the apparent migration wave of 2007 did not correspond entirely to 'new' inflows and reflected, at least partly, a regularisation of migrants already living in the country before accession.

This seems to be confirmed by EU-LFS data concerning duration of residence in the country of recent EU movers (see Charts 3 and 4), especially for EU-2 movers:

- As far as EU-10 nationals living in another Member State are concerned, around two-thirds arrived in the destination country after the 2004 enlargement (i.e. around seven years before 2010) with this percentage rising to nearly 80 % in Sweden and Belgium, and around 90 % in Ireland and the UK. On the other hand, this percentage is much lower in Italy, Spain, Germany, Austria, and France where a significant share (around 60 %) of EU-10 nationals had already arrived before the 2004 accession;
- The situation of EU-2 nationals living abroad is different in that, on average, less than 30 % of them arrived after the 2007 enlargement, and more than 40 % were already in the destination country before 2004. The situation in the

two main receiving countries is particularly striking: almost 80 % of the working-age EU-2 citizens living in Spain and Italy had arrived before the 2007 accession.

One should, however, be cautious in the interpretation of this data since the low proportion of recent arrivals among EU movers may also reflect the fact that the sample of the EU LFS is more likely to cover persons who have been living in the

country for some time (at least one year, see Annex 1).

## 2.5. Evolution of the mobility flows and stock in period of recession

Significant numbers of foreign citizens entered the EU-15 Member States in the period 2004-2007 (end

**Table 8: Annual net growth of stock of foreigners in the EU-15 countries, by group of citizenship (in thousands)**

Citizens from :	2004	2005	2006	2007	2008	2009	2010
EU-15	7	118	420	233	167	77	99
EU-10	84	260	429	360	124	18	295
EU-2	184	193	274	601	345	186	273
Non-EU-27 countries	1 214	695	297	977	636	333	160

Source: DG EMPL calculations based on Eurostat migration statistics and EU LFS. For more details on the source, please see Tables 3 and 4.

**Table 9: Impact of recession on net population flows to EU-15 countries (in the period 2008-2009)**

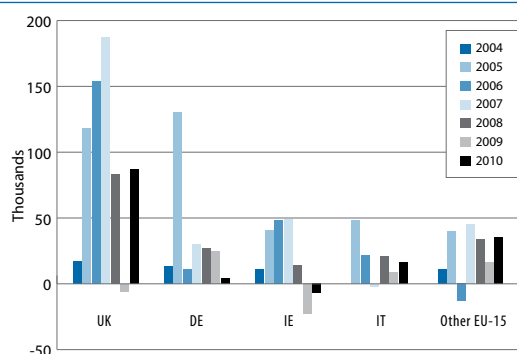
EU-8 and EU-2 Member States	Impact on net migration to EU-15 (in thousand)	Impact (in %)
Czech Republic	-43.6	-125
Estonia	-1.8	-12
Hungary	-23.1	-52
Lithuania	-20.2	-44
Latvia	10.4	85
Poland	-395.1	-70
Slovenia	-0.5	-18
Slovakia	-64.1	-81
<b>EU-8</b>	<b>-538</b>	<b>-67</b>
Bulgaria	-23.2	-18
Romania	-566.8	-54
<b>EU-2</b>	<b>-590</b>	<b>-50</b>

Source: Holland et al. (2011).

Note: In this study, the impact of the recession was calculated as the difference between actual net inflows that occurred and the net inflows that would have occurred if the average emigration rate observed during 2007 had maintained during 2008-2009.

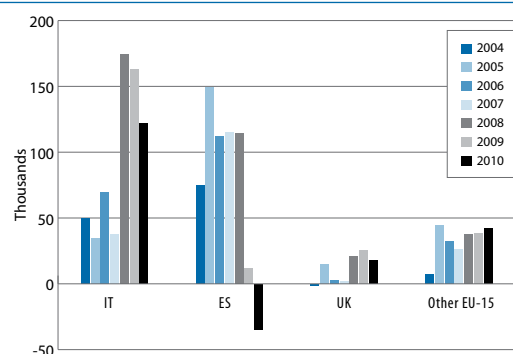
(9) See in particular the case study on Spain by Ana Rincon-Aznar.

**Chart 5: Yearly evolution of the global stock of EU-10 working-age (15-64) nationals, in the main receiving countries (in thousands)**



Source: DG EMPL calculations based on EU LFS (annual averages)

**Chart 6: Yearly evolution of the global stock of EU-2 working-age (15-64) nationals, in the main receiving countries (in thousands)**



Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages)

2003 to end 2007), with on average an annual net growth of 300 000 each from EU-10 and EU-2 Member States, and close to 800 000 from non-EU countries (Table 8). However, this trend has changed radically since 2008, the year that marked the start of the financial economic crisis that developed into a global recession in 2009. Indeed the lower demand for workers has resulted in a decrease of intra-EU labour mobility but also of international migration, as also pointed out by the OECD (2011).

In the face of declining employment opportunities, as a result of the economic recession, foreign workers had two options if they lost their jobs: to leave the host country, or to stay (Koe-hler et al., 2010). This section analyses the evolution of labour mobility during the recession, while Section 4.2 analyses outcomes of intra-EU mobile workers in the recent period and compares it to 2007, thereby seeking to examine the impact of the recession on the employment situation of those who stayed.

Using data on the population stock living in EU-15 Member States by group of citizenship, it appears that the net emigration of all groups of foreigners slowed sharply in 2008 and even more so in 2009 (see Table 8). This was particularly true with respect to EU-10 nationals: their net annual growth declined from 360 000 in 2007 to 124 000 in 2008 and 18 000 in 2009 (before recovering in 2010, at close

to 300 000<sup>(10)</sup>). This global figure for EU-15 countries hides, moreover, a very heterogeneous evolution among EU-15 countries (see Table 3 and 4) with a net decline in the number of EU-10 nationals (reflecting higher outflows than inflows) in the UK, Ireland, and Greece in 2009, contrasting with constant growth in 2008 and 2009 in Belgium, the Netherlands, Italy, Sweden, and Germany.

As far as EU-2 nationals are concerned, mobility has been more resilient, with the annual average net growth declining from around 600 000 in 2007 to 345 000 in 2008 and staying at a relatively high level in 2009 (close to 190 000) before recovering in 2010 (273 000).

The reduction in intra-EU labour mobility in the years 2008-2009 compared to previous years (and especially 2007), may reflect the end of a pent-up demand for migration, especially from EU-8 Member States, after 4-5 years of EU membership (Holland et al. (2011)). However, there is clear evidence that the slowdown is at least partly explained by the severity of the crisis and its impact on EU-15 labour markets:

- the recovery in the net inflows of EU foreigners during 2010 suggests that the improvement of the

(10) As far as EU-10 nationals are concerned, 75% of the net growth recorded in 2010 was accounted for by entries to the UK, with negative trends in several other Member States (Greece, Denmark, Ireland, Germany).

economic conditions has led to renewed inflows from both EU-10 and EU-2 countries;

- the receiving countries where the evolution of the number of EU-12 nationals has been less favourable are generally those where the labour market has been strongly affected by the economic recession<sup>(11)</sup>;
- finally, the negative effect of the economic recession was not restricted to intra-EU mobility and seems to have also been strong on migration from third country nationals, with annual net growth to the EU-15 Member States falling from around 800 000 on average in 2004-2007 to less than 500 000 in 2008-09, and around 160 000 during 2010<sup>(12)</sup>.

(11) Holland et al. (2011) have estimated the impact of developments of GDP per capita and unemployment rates in the different EU-15 economies on the distribution of mobile workers from the EU-8 and EU-2 economies. For instance, the particularly serious worsening of the Spanish economy and labour market is seen to account for about half of the decline in that country's share of EU-8 and EU-2 foreign nationals living in EU-15 between 2007 and 2009. For more details on the methodology used and the results by individual country, see Holland et al. (2011), Section 3.6 "Estimates of the impact of transitional arrangements on migration".

(12) This overall evolution hides differences between EU-15 countries, however, with a decline of the stock of third-country nationals since 2008 (reflecting high levels of outflows and declining inflows) in Spain, UK, and Ireland, contrasting with sustained growth in Italy.

Comparing the migration rates in 2008-2009 to 2007, Holland et al. (2011) estimated that net inflows from the EU-8 to the EU-15 Member States in 2008 and 2009 were 67 per cent lower than they might have been in the absence of the global recession, while flows from the EU-2 were reduced by about 50 per cent (see Table 9). Latvia is an exception, however, since outflows appear to have been higher than would otherwise have been expected - which may be a reflection of the very sharp downturn in that country, where GDP declined by 18 per cent in 2009 leading to an unemployment rate of nearly 20% at the end of 2009.

Data with respect to the working-age population may better depict the evolution of labour mobility than data concerning the overall population, which includes children as well as older people. As far as receiving countries are concerned, EU LFS data on the evolution of the number of EU-10 working-age (15-64) nationals confirm (see Chart 5) the decline of net inflows in 2008 and especially in 2009, with a negative net evolution (higher outflows than inflows) recorded in the UK and Ireland. 2010 exhibits a very strong recovery of the number of EU-10 working-age nationals in the UK and in the category 'other EU-15 countries', while it continued to decrease in Ireland.

For EU-2 nationals (see Chart 6) the decline in intra-EU mobility has been concentrated in Spain, with a sharp decrease of the net inflows in 2009 and a negative evolution in 2010. In recent years, most of the increase in the stock of working age EU-2 nationals has been towards Italy.

Nevertheless the global decline since 2008 in labour mobility from EU-2 to EU-15 Member States has been less pronounced than for EU-10 nationals<sup>(13)</sup>. This can be explained by three

factors: firstly, the enlargement to the EU-2 countries took place more recently and is still impacting on workers mobility. Secondly, Bulgaria and Romania have been particularly adversely affected by the economic recession, thereby encouraging emigration or discouraging return migration. Finally, the large differences in wages and GDP per capita with the EU-15 countries still constitute a strong pull-factor (see Section 3).

Several data sources point out that the recession has both increased the number of EU migrant workers who have returned home, and reduced the number of those moving to EU-15 countries. Considering the yearly evolution of the 'stock' (Tables 3 and 4 and Charts 5 and 6), it appears that it has rarely been negative, indicating a general decrease in inflows rather than massive outflows. However, beyond the year-to-year evolution of the stock of foreigners (which provides a good indication of the balance between inflows and outflows) it is also relevant to consider data of flows.

Long-run reliable and harmonised data on inflows and outflows exist for only a limited number of EU Member States. In the case of EU-2 citizens in Spain and Italy (their two main destination countries), these data seems to confirm (see Charts 7 and 8) that the net evolution has been mainly driven by changes in inflows, declining strongly in 2008 and 2009 (especially in Spain) after the peak of 2007, in contrast to limited (though increasing) outflows<sup>(14)</sup>. The balance between inflows and outflows remained positive for both countries for all years, though in Spain the net inflows decreased substantially, with outflows representing around half of the inflows.

(14) The data used in Charts 7 and 8 refer to the Eurostat emigration and immigration statistics broken down by nationality, and not by country of previous/next residence (due to the scarcity of the emigration data recording the country of next residence). As far as inflows are concerned, a comparison of the immigration data of EU-2 nationals to the immigration data from EU-2 countries has found that there are relatively limited differences between the two datasets (1-2% for Italy and around 10-15% in the case of Spain).

The overall limited return mobility of EU-2 nationals (mostly Romanians) from Spain, despite a very adverse employment situation (see Section 4) can be linked to various factors:

- the economic recession in Romania in 2009-2010 which discouraged nationals to return home, in contrast with Poland where the resilience to the crisis compared to most EU countries has probably increased return mobility (from the UK or Ireland);
- the overall intention of Romanian nationals living in Spain to stay for a long duration<sup>(15)</sup> and the network effects and resulting mutual support within the emigrated population during the economic downturn (see also Section 3.3);
- and, according to the 'Mobility in Europe - 2010' report<sup>(16)</sup>, the relatively favourable situation of EU-2 nationals in Spain, in terms of access to unemployment benefits, social assistance, and health services.

In conclusion, overall the recession caused a slowdown of the inflows of EU-10 and EU-2 citizens in EU-15 countries, but there is no evidence of a massive return migration to the countries of origin (Ireland being to a certain extent an exception). A significant portion of the workers from the EU-8 and EU-2 decided to stay in the destination country rather than return, notably since the economic situation in the sending countries had also deteriorated as a consequence of the crisis (Koehler et al., 2010). In other words, labour mobility is, to some extent, self-regulatory in that the inflows of workers in receiving countries reduced when labour demand was weakened (potentially reducing pressure on local labour markets<sup>(17)</sup>) but the recession did not lead to substantial outflows of return to the countries of origin.

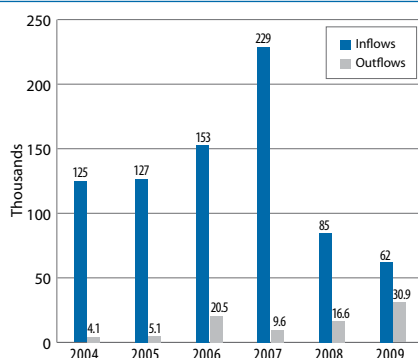
(15) European Commission, 2010a. This report quotes (p. 63) a survey carried out of Romanians in Spain in 2007 that found that 78% were intending to remain permanently and only 8% expressed an intention to return to Romania.

(16) European Commission, 2010a.

(17) Bräuninger and Majowkli, 2011.

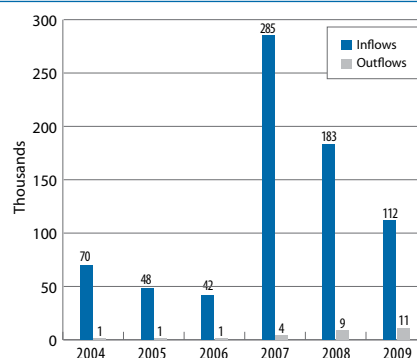


Chart 7: Inflows and outflows of EU-2 citizens in Spain, in 2004-2009 (in thousands)



Source: Eurostat migration statistics (migr\_imm1ctz and migr\_emi1ctz).

Chart 8: Inflows and outflows of EU-2 citizens in Italy, in 2004-2009 (in thousands)



Source: Eurostat migration statistics (migr\_imm1ctz and migr\_emi1ctz).

Note: Provisional data for 2008 and 2009

Where transitional restrictions persisted, there may also have been an incentive to remain in the host country after becoming unemployed, due to the uncertainty of being permitted to return once economic conditions improved.

## 2.6. Temporary mobility flows

The picture of intra-EU labour mobility presented in previous sections mainly covers workers who are 'usually resident' in the receiving countries, at least for a certain time. However, cross-border labour mobility can take other forms, for instance circular mobility or short-term periods abroad (from one week to a few months). In the EU, it seems that these alternative forms of mobility have increased in importance over the past decade.

According to the 2009 Eurobarometer on geographical and labour mobility<sup>(18)</sup>, around 10 % of EU citizens declared that they had already worked and lived in another country at some time, with 51 % of them having worked for less than two years, and 38 % for less than one year. These shares are significantly higher among the EU-12 citizens (respectively 71 and 56 %). Other studies confirm that recent EU-mobility is largely characterised by short- and medium-term moves<sup>(19)</sup> and the size

of compensation flows of the short-term mobile workers back to their country of origin also suggests that this type of mobility is very important (see also Section 5.5).

Considering the development of mobility in the period 2004-07, it seems that many workers from EU-8 and EU-2 countries did not intend (at least initially) to remain permanently in the host country (Drinkwater, Eade, and Garapich, 2009). Rather they regarded their stay as an opportunity to earn money, of which a significant portion was sent home, and to gain skills, qualification, and status. In this respect Pollard et al. (2008) have estimated that, in 2008, around half of the million EU-8 migrant that had arrived in the UK since 2004 had already left the country.

However, it remains difficult to accurately measure short-term labour mobility abroad from available data (Green et al. 2009). As underlined in Annex 1, Labour force survey data includes only individuals who had stayed (or who intended to stay) at least one year in the country. Poor data availability for short-term mobility makes it impossible to cover all mobile workers and constitutes a limitation to the estimated impact of mobility on the economies of sending and receiving countries developed in Section 5. The present Section 2.6 nevertheless is aimed at presenting some evidence on temporary mobility flows.

Circular mobility has been underlined as a typical pattern of intra-EU movers from EU-12, in particular from Romania to Italy and from other EU-12 countries to Germany and Austria, often involving seasonal work of low-skilled manual workers (Potot, 2010). Sectors such as tourism, agriculture, or horticulture typically attract seasonal workers, from Poland, Bulgaria, or Romania, but also from non-EU countries. In the case of Germany (large receiving countries of seasonal workers from EU-12) statistics are available per year and origin country; see Table 10. Around 300 000 seasonal workers from EU-8 countries and Croatia come to work every year in Germany, with the major recent development being the decline of the share of Polish seasonal workers – mirrored by the rise of the Romanians which represent 35 % of the total in 2010 compared to around 7 % in 2003.

The posting of workers is a specific form of circular migration whereby a worker is sent by his/her employer to another country to work for a limited duration. At the EU level, data on E101 forms (the certificates produced for social security purposes when a worker is posted in another EU Member State) indicate that around 1 million workers are posted yearly (in the period 2007-2009)<sup>(20)</sup>.

(20) These data are analysed in detail in European Commission (2011a) "Posting of workers in the European Union and EFTA countries: Report on E101 certificates issued in 2008 and 2009 (2011)", available at: <http://ec.europa.eu/social/BlobServlet?docId=6554&langId=en>.

(18) European Commission, 2010b.

(19) European Commission, 2010a.



Table 10: Foreign seasonal workers to Germany by nationality, 2002-2010

	2002		2003		2004		2005		2006		2007		2008		2009		2010	
	Persons	%	Persons	%	Persons	%	Persons	%	Persons	%	Persons	%	Persons	%	Persons	%	Persons	%
Poland	252 902	84.8	265 414	85.8	279 961	86.4	272 757	85.1	230 353	78.2	224 078	76.9	190 582	68.7	184 241	64.2	174 071	60.9
Hungary	4 082	1.4	3 361	1.1	2 665	0.8	2 203	0.7	1 693	0.6	1 688	0.6	1 788	0.6	1 835	0.6	1 949	0.7
Romania	20 612	6.9	22 681	7.3	24 808	7.7	30 642	9.6	48 517	16.5	53 719	18.4	73 075	26.3	89 172	31.1	97 517	34.1
Slovenia	252	0.1	219	0.1	190	0.1	158	0.0	138	0.0	117	0.0	110	0.0	118	0.0	100	0.0
Croatia	5 826	2.0	4 969	1.6	4 578	1.4	4 520	1.4	4 705	1.6	4 575	1.6	4 162	1.5	4 248	1.5	4 665	1.6
Bulgaria	1 492	0.5	1 434	0.5	1 249	0.4	1 320	0.4	1 293	0.4	1 182	0.4	2 865	1.0	3 045	1.1	3 520	1.2
Czech Republic	2 676	0.9	2 130	0.7	1 881	0.6	1 520	0.5	1 169	0.4	1 019	0.3	798	0.3	686	0.2	704	0.2
Slovakia	10 260	3.4	9 260	3.0	8 702	2.7	7 263	2.3	6 582	2.2	4 979	1.7	4 190	1.5	3 601	1.3	3 469	1.2
Total	298 102	100	309 468	100	324 034	100	320 383	100	294 450	100	291 357	100	277 570	100	286 946	100	285 995	100

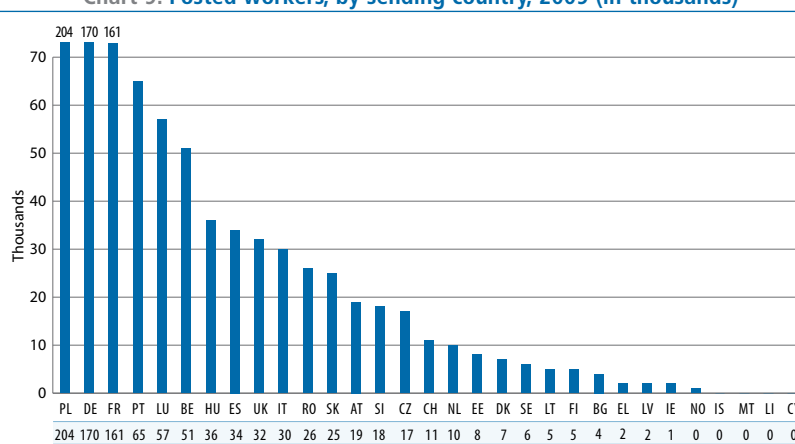
Source: Bundesministerium für Arbeit und Soziales, Germany.

Around two-thirds of recorded postings originate in EU-15 and EFTA countries and one-third in EU-12 countries. However, posted workers represent 0.25 % of the working-age population in the EU-15 sending countries compared to 0.5 % in the EU-12 sending countries, with Poland playing a significant role as it sent more than 200 000 posted workers in 2009 - 92 % of them to EU-15 countries. Among EU-15 countries, Germany and France are the largest sending countries, with respectively 170 000 and 160 000 posted workers in 2009, while Portugal, Luxembourg, and Belgium also send more than 50 000 posted workers per year.

More than 85 % of posted workers are sent to EU-15 countries, while EFTA countries attract around 8 %, and EU-12 countries the remaining 7 %. The largest receiving countries are Germany and France, followed by Belgium and the Netherlands. In Germany the majority (around three-quarters) of posted workers are sent from EU-12 countries (mostly Poland), and this is also the case in the Nordic countries. In other EU-15 countries most posted workers come from other EU-15 countries.

The recent evolution is comparable to intra-EU mobility as analysed in Section 2.5 (negative impact of the weaker labour demand due to the economic recession). Indeed, compared to 2007, the data suggest some stagnation or even decrease in the number of postings, especially during 2009, with France, Poland, and Germany sending significantly

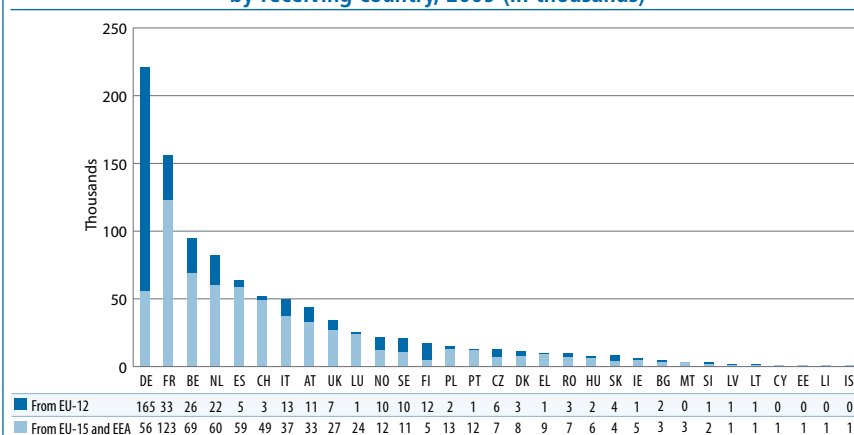
Chart 9: Posted workers, by sending country, 2009 (in thousands)



Source: Administrative data from EU Member States and EFTA countries on E101 certificates issued to workers for posting to EU Member States and EFTA countries.

Note: Data do not include E101 certificates issued for persons active in 2 or more Member States, multiple destinations, or international transport. Figures for UK relate to April 2009 to March 2010 and figures for Germany to 1 January 2009 to 30 November 2009.

Chart 10: Posted workers from the EU-15 and EFTA and from the EU-12, by receiving country, 2009 (in thousands)



Source: Administrative data from EU Member States and EFTA countries on E101 certificates issued to workers for posting to EU Member States and EFTA countries.

Note: Data do not include E101 certificates issued for persons active in 2 or more Member States, multiple destinations, or international transport. Figures do not include postings from SE and CH as both countries did not provide data disaggregated by destination country. Figures for UK relate to April 2009 to March 2010 and figures for Germany to 1 January 2009 to 30 November 2009.

fewer posted workers abroad in 2009 than in 2007. During the same period, the only notable increase was in the number of posted workers

from Romania although the overall numbers remain limited (26 000 in 2009 or 7.5 % of all posted workers originating in EU-12 countries).

### 3. WHAT INFLUENCES MOBILITY FLOWS WITHIN THE EU?

#### 3.1. Theories of migration

In the literature on migration, different theories analyse the motivation and pattern of international labour mobility. For instance the push-pull approach assumes that there exist factors which attract immigration (pull) and others that generate emigration (push) (Lee, 1966). In a way, this theory isolates two aspects of the decision to migrate, with the decision to leave the home country being determined by push factors, and the choice of the destination country determined by pull factors<sup>(21)</sup>. The most obvious push and pull factors are income levels and employment opportunities. However, the driving factors are not only or necessarily macro-economic factors. Sector-level developments can also be important, as has been the case in Ireland and Spain, where the volume of residential construction grew at more than three times the average EU-15 pace between 1999 and 2006, providing a strong pull factor for foreign construction workers.

Migration can also be analysed in cost-benefit terms at the micro-economic level, with economic agents (individuals or households) deciding whether or not to migrate (Sjaastad, 1962). Migration is then seen as a form of investment in human capital with the pure monetary costs (and benefits) supplemented with the social, cultural, and psychological costs (and benefits) of migration (Zaiceva and Zimmermann, 2008). In the following section we start by analysing the macro-economic drivers, moving on to take account of other factors, and then concluding with an analysis of the results of recent opinion surveys.

(21) We try to separate here push and pull factors for analytical reasons. In the real world, it may be hard to disentangle push and pull factors, as it is the comparison between the respective home and foreign variables that matters.

#### 3.2. Macro-economic drivers

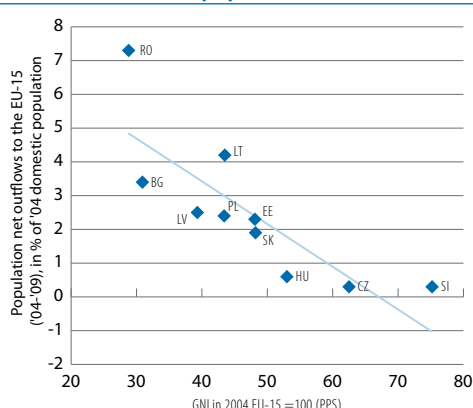
As already underlined in 'Employment in Europe' in 2008, relative income levels seem to have been key push factors behind intra-EU mobility, with the poorest EU-8+2 Member States having seen the largest net outflows of migrants to EU-15 over the period 2004-2009 (Chart 11).

In 2010, differences in income level within EU-27 remain large, with Bulgaria and Romania at the bottom, with a gross national income (GNI) per capita of around 40 % of the average EU-15 level, measured in purchasing power standards (PPS) (Table 11). Nevertheless, Bulgaria and Romania have seen the fastest convergence, together with Slovakia and Poland. Also Latvia and Estonia have seen fast

convergence, notwithstanding the decline in their relative income level between 2007 and 2010 as a result of the financial crisis. In general, the poorest EU-8+2 Member States have seen the fastest convergence to the EU-15 income level – evidence that suggests that emigration rates (i.e. emigration as a share of the sending population) from EU-8+2 to EU-15 will tend to decline over the medium-term.

Purchasing power parity estimates are important, since they take account of the higher cost of living in the destination country. Nevertheless, migrants can use part of their income as remittances or for consumption in their home country. As a result, differences in income at current exchange rates may also affect migration decisions (Brücker et al., 2009). At current exchange rates, GNI per capita in 2010 was

Chart 11: Gross national income and population net outflows to the EU-15, EU-8+2



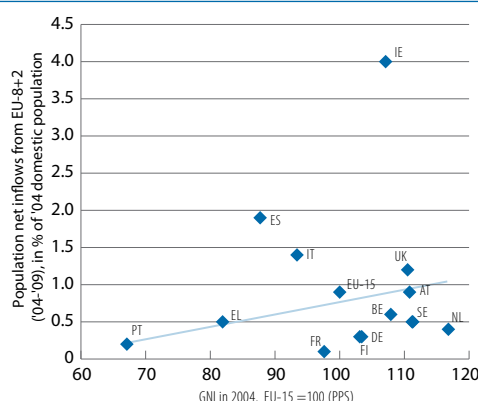
Sources: DG ECFIN (AMECO) for GNI. Population flows estimated on the basis of Eurostat migration statistics and other sources, see details in Holland et al. (2011).

Table 11: Gross national income per capita (PPS) in EU-8+2 Member States (in % of EU-15 level)

	2004	2005	2006	2007	2008	2009	2010	change '04-'10	change '07-'10
Czech Republic	62	64	65	66	69	70	70	7	3
Estonia	48	52	55	58	58	56	56	8	-2
Latvia	39	42	44	48	50	51	47	8	-1
Lithuania	43	46	48	51	53	51	49	6	-1
Hungary	53	53	53	52	55	56	56	3	4
Poland	43	45	45	47	50	53	54	11	7
Slovenia	75	77	77	77	80	78	78	3	1
Slovakia	48	52	54	59	64	65	67	19	8
Bulgaria	31	32	33	33	38	39	39	8	5
Romania	29	30	33	36	41	41	40	11	4

Source: DG ECFIN (AMECO). Changes in percentage points.

Chart 12: Gross national income and population net inflows from EU-8+2, EU-15



Sources: DG ECFIN (AMECO) for GNI. Population flows estimated on the basis of Eurostat migration statistics and other sources, see details in Holland et al. (2011).

Table 12: Gross national income per capita (euro) in EU-8+2 Member States (in % of EU-15 level)

	2004	2005	2006	2007	2008	2009	2010	change '04-'10	change '07-'10
Czech Republic	31.3	34.8	37.4	39.0	46.5	44.8	45.2	13.8	6.2
Estonia	26.2	29.7	33.5	37.3	39.1	36.8	36.3	10.1	-1.1
Latvia	18.1	20.8	24.2	30.5	34.6	32.3	28.8	10.6	-1.8
Lithuania	19.8	22.4	24.5	27.7	31.9	29.5	28.8	9.0	1.2
Hungary	29.8	30.9	30.0	31.7	34.1	32.1	32.8	3.0	1.1
Poland	19.9	23.4	24.7	26.8	32.1	28.6	31.3	11.4	4.6
Slovenia	51.5	53.1	54.3	57.0	61.6	61.9	60.8	9.2	3.8
Slovakia	23.2	25.9	28.5	33.5	40.0	41.8	42.1	18.9	8.6
Bulgaria	10.2	11.2	11.9	12.7	15.3	16.5	16.4	6.2	3.7
Romania	10.4	13.3	15.6	19.0	21.7	19.7	19.7	9.4	0.7

Source: DG ECFIN (AMECO). Changes in percentage points.

below 50 % of the EU-15 average in all EU-8+2 Member States, except Slovenia. Again, incomes are converging to the EU-15 average (Table 12).

By contrast, among EU-15 Member States, income levels are less likely to have been the key pull factor (Chart 12). Migration has been redirected, independently of the destination's income level, by the economic

opportunities in the destination countries, the transitional arrangements in place during this period (see Box 2), as well as other factors, such as network effects (see "Other factors influencing mobility" below).

So far, we have focused on the effect of relative income levels on migration. However, the expected income level is as crucial to potential migration since it has to make up for the

sunk cost of migration. The present divergence in short- to medium-term growth prospects of Member States will undoubtedly affect the flows to individual destination Member States, particularly shortly after the end to the transitional arrangements for EU-8 mobile workers. The expected income is evidently related to wage and employment developments and prospects in the destination Member States. With regard to wages, statistical issues<sup>(22)</sup> have rendered comparisons of hourly wage data over time very difficult. Nevertheless, Commission estimates suggest that wages have converged further, with average hourly gross wages and salaries in EU-10 and EU-2 at, respectively, 31 % and 14 % of the average EU-15 level in 2009, compared with 24 % and 9 % in 2006.

The employment rate has acted as a push factor, with the EU-8+2 Member States with the lowest employment rates having, in general, seen the largest outflows (Chart 13). On the receiving side, the EU-15 Member States with the highest employment rate have generally seen the largest inflows (Chart 14, left-hand panel), with two important groups of exceptions (Chart 14, right-hand panel). One group contains the Member States with the highest employment rates (Denmark, the Netherlands, and Sweden), which have seen relatively low inflows from EU-8+2 over 2004-2009. The other exceptions are among the main attractors: Italy, Spain, and Ireland, with employment rates that were, respectively, the lowest of EU-15, below the EU-15 average, and only slightly above average.

(22) Changeover from NACE Rev. 1.1 to NACE Rev. 2.

### Box 2: The impact of the transitional arrangements on intra-EU mobility patterns

In addition to the impact of enlargement on intra-EU mobility flows described in Section 2.4, it is important to assess what has been the impact of the various levels of openness of the labour markets of receiving countries. 'Old' Member States had the possibility to keep restrictions to EU law on free movement of workers during a period of transitional arrangements of maximum seven years and the choices they made had a certain impact on the distribution of labour flows across the receiving countries.

While the restrictions applied by certain Member States may have reduced the global inflows from EU-10 to EU-15 countries (Brücker et al. 2009), most studies suggest that the main effect of the restrictions was to redirect potential foreign workers to EU-15 countries with easier access to labour markets (Münz and Tamas, 2006; Brücker et al. 2009; Barrell, Riley, and FitzGerald, 2010).

As far as **EU-10 workers** are concerned, the well-known diversion of the flows occurred from Germany and Austria (which kept restrictions until the end of the third phase of the transitional arrangements on 30 April 2011) to the UK and Ireland, who decided to open their labour markets from May 2004. Until the end of 2003, almost three-fifths of the EU-10 citizens living in EU-15 Member States were in Germany and Austria; this share has decreased to 28 % at the end of 2010 (see Table 4) – mirrored by the rise of the share of the UK and Ireland, from 16 % to around 45 % on the same period.

Nevertheless, while the link between the 'open regime' of the UK and Ireland and the high share they took in the inflows of EU-10 workers in the post-accession period is quite obvious, the same effect did not occur in other countries. Despite the ease of access to the Swedish labour market also from 2004, there was little shift in the share of EU-10 citizens resident in Sweden, suggesting that the transitional arrangements cannot fully explain the changes. Moreover, despite the lifting of the transitional arrangements in 2006 (at the end of the first phase) in Greece, Spain, Italy, Portugal, and Finland, there has not been a clear rise in share of EU-10 workers in any of these countries between 2006 and 2009 (see Table 4). Finally, the UK had already received the highest inflows from the EU-8 countries in 2002 and 2003, suggesting that the distributional shift from Germany to the UK was already an ongoing process, and one cannot attribute this entire shift to the presence of transitional restrictions.

Holland et al. (2011) have conducted econometric work to estimate the likely impact of the transitional arrangements on the distribution of EU-8 citizens across the EU-15 versus other factors such as employment opportunities in the host country (measured by the unemployment rate) and the earnings potential (captured by GDP per capita)<sup>(1)</sup>. It appears from this research that transitional restrictions only explain a limited part of the evolution of the distribution of EU-8 citizens across the EU-15. For instance the lower unemployment rate in the UK (than in the other EU-15 countries) played a relatively bigger role in attracting inward mobile workers than the ease of access to the labour market. Nonetheless, the transitional restrictions still explain roughly 20 % of the shifts in share between 2003 and 2009 in the UK and Germany. Holland et al. (2011) recognised that this should be considered as the lower limit of the estimated impact of the transitional arrangements, as there remains a significant residual category in each country that cannot be explained by the model. It is possible that this partly reflects more refined distinctions between the types of labour market restrictions across countries that the simple restriction index used cannot capture. Nevertheless, these results suggest that some earlier studies may have overestimated the role of transitional arrangement in the location decision, as they have not adequately accounted for some more traditional factors driving the location decision. While there has been a clear shift in the distribution of EU-8 citizens across the EU-15, this shift was already ongoing prior to the 2004 enlargement, and can be explained to a large extent by differences in the macro-economic developments within the potential destination countries. Finally some specialised researchers on migration pointed out that the visible shift in the destination countries of EU-8 workers should not directly be interpreted as a diversion effect due to different level of labour market access. Indeed, those who moved to the United Kingdom would not necessarily have moved to Germany if its labour market had been opened from 2004 – notably because of their socio-economic characteristics or language skills.

Interestingly, some effects of the transitional arrangements on the distribution of EU-8 citizens across EU-15 Member States may have an impact in the long run, notably due to the importance of network effects. Many studies have found that an existing network or diaspora is one of the most important factors driving the destination decision of migrants (see for example Delbecq and Waldorf, 2010; Pedersen et al. 2008) and one could expect the distribution of EU-8 citizens across the EU-15 economies to remain largely constant over time. A look at the recent evolution of inflows (see Section 2.5) shows that in 2010 the UK remains by far the main destination country of EU-10 citizens, despite the fact that this country has been quite affected by the economic recession. This raises the question of whether the end of the period of transitional arrangements on 1 May 2011 will have a significant impact on mobility to Germany and Austria (the only two countries having kept substantial restrictions until the end of the third phase) or if the UK will continue to attract most of the flows from EU-10 countries. Recent anecdotal evidence (from press reviews) and some first analytical research<sup>(2)</sup> seems to indicate that, a few months after the end of the transitional arrangements, there are no massive flows from EU-8 countries to Germany and Austria. Several sources<sup>(3)</sup> indicate that labour mobility to Germany is likely to increase in the coming years given the relatively promising employment outlook there. These increased inflows could also come from the EU-15 Member States very affected by the economic crisis (Spain, Ireland, Greece, and Portugal) and not necessarily from the EU-12 countries.

In the case of **EU-2 mobile workers**, it is not clear that the restrictions on labour market access through transitional arrangements had a significant impact on the location decision in the same way as they did following the 2004 enlargement for EU-8 mobile workers. In addition to the key macro-economic developments and the ease of access to the labour markets, other factors may have determined the location decision of EU-2 mobile workers. These may include cultural and linguistic factors, which are likely, in particular, to make Italy and Spain attractive locations for Romanians.

(1) For more details on the methodology used and the results by individual country, see Holland et al. (2011), Section 3.6 "Estimates of the impact of transitional arrangements on migration".

(2) See notably European Commission (2011c).

(3) Holland et al. 2011; Bräuninger and Majowkli, 2011.

The Table 13 below shows the evolution of the average net growth of EU-2 nationals for each country group (based on the year when the receiving Member States started to apply EU law on free movement for EU-2 workers). It appears that the impact of opening the labour market early (in Finland, Sweden, and most EU-10 Member States) on net inflows from EU-2 has been very limited. As for the countries that opened their labour markets in 2009 after the end of the first phase, the net inflows have also been very limited following the opening (Denmark, Hungary) or decreased significantly compared to the previous years (Spain, Greece and Portugal) which can partly be explained by the economic recession. Meanwhile, the countries that continued to use transitional measures have received significant inflows since 2007. In the case of Italy, since 2007, no work permits have been required in several key sectors which can explain the strong rise in mobility from EU-2 countries.

**Table 13: Average annual net growth of EU-2 nationals, by group of countries (in thousands and in % of the total resident population)**

Group of receiving Member States		2003-2006		2007-2008		2009-2010	
		in thousand	in % of total pop.	in thousand	in % of total pop.	in thousand	in % of total pop.
Member States granting free access from 2007		2	0.00	13	0.02	10	0.01
Member States granting free access from 2009	Spain	137	0.32	150	0.33	21	0.05
	Others	10	0.03	13	0.04	19	0.05
Member States not applying free movement	Italy	58	0.10	238	0.40	116	0.19
	Others	15	0.01	70	0.03	76	0.03
Total EU-25		222	0.05	484	0.10	242	0.05

Source: DG EMPL calculations based on Eurostat migration statistics and EU-LFS (for more details see notes of Tables 3 and 4).

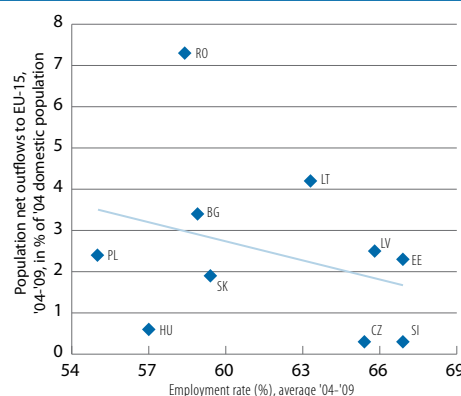
Note: Total resident population considered for the ratio is calculated as an average on each period. 2003-2006 corresponds to the period before accession of EU-2 countries; 2007-2008 corresponds to the first phase of the transitional arrangements; 2009-2010 corresponds to the first two years of the second phase of the transitional arrangements. Groups of countries based on Table 4 as follows: 1) Member States granting free access from 2007: CZ, EE, CY, LV, LT, PL, SI, SK, FI and SE; 2) Member States granting free access from 2009: DK, EL, ES, HU, PT; 3) Member States not applying free movement: BE, DE, IE, FR, IT, LU, MT, NL, AT, UK. ES and IT treated separately due to their size in EU-2 inflows.

In fact, since the 2007 enlargement, the main shift in the distribution of the stock of EU-2 mobile citizens has been the decline of the share of Spain in the period 2006-2009 (from 49% to 40%) and the rise of the share going to Italy (from 27 to 38%). This development can be explained by two factors: firstly, the partial opening of the labour market in Italy from 2007 (no work permit required any more in several key sectors) and secondly, the degradation of the Spanish labour market since 2008 (see also Section 2.5).

Beyond the effect of the transitional restrictions on the distribution of inflows, some side-effects have been observed in those countries that retained restrictions. The restrictions appear to have encouraged irregular forms of labour mobility in the respective countries. Holland et al. (2011) point out that some EU-8 and EU-2 citizens might have chosen alternative or illegal routes to employment. Since the free movement per se ceased to be restricted, it would have been easy to travel on a tourist or student visa and to overstay the permitted duration and then enter the labour market via an irregular channel. Moreover, the high proportion of self-employed amongst EU-10 workers in Germany or EU-2 workers in the UK may reflect an abuse of this channel of entry into the labour market, since self-employment became unrestricted following accession (see Section 4.3).

Unemployment rates seem to have played a limited role in emigration decisions, as indicated by a zero correlation between the unemployment rate (in the previous year) and the emigration rate in a given year. For example, for some years, Romania and some Baltic countries had an unemployment rate even below the EU-15 average (Chart 15) and, yet, high emigration rates. On the other hand, at the start of the sample, double-digit unemployment rates in Poland and Slovakia did not trigger massive outflows, at least measured in relative terms. The transitional arrangements, as well as country-specific structural factors (such as the country size) may have played a role here.

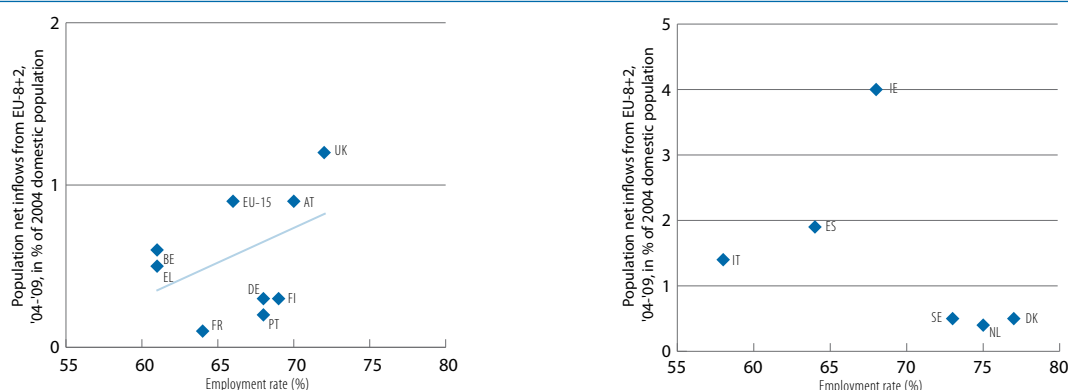
**Chart 13: Employment rates and population net outflows to the EU-15, EU-8+2**



Source: Eurostat, EU LFS for employment rates (lfsa\_emprt). Population flows estimated on the basis of Eurostat migration statistics and other sources, see details in Holland et al. (2011).



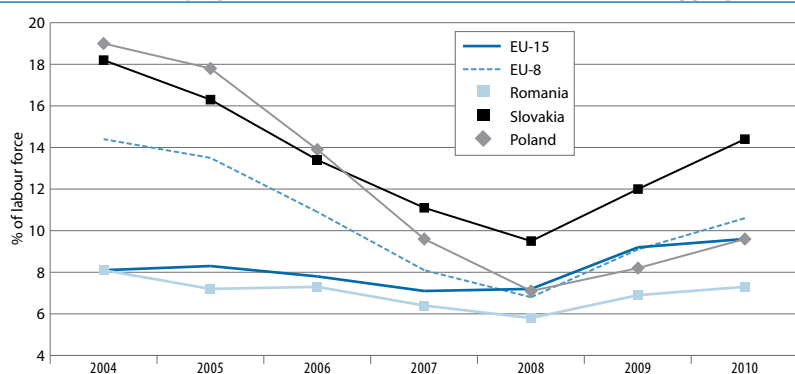
Chart 14: Employment rates and population net inflows from EU-8+2, in EU-15 Member States



Source: Eurostat, EU LFS for employment rates (lfsa\_empt). Population flows estimated on the basis of Eurostat migration statistics and other sources, see details in Holland et al. (2011).

Note: Employment rate: average '04-'09, in % of population in age group 15-64 years.

Chart 15: Unemployment rates in selected Member States and aggregates



Source: Eurostat, EU LFS (lfsa\_unemp).

### 3.3. Other factors influencing mobility

Macro-economic factors alone do not provide a sufficiently satisfactory explanation of the diversity in bilateral intra-EU migration flows. Macro-economic pull factors, such as the three-to-one ratio in wages, have not led to a massive emigration from EU-12 to EU-15, and increased uncertainty following the financial and sovereign crisis may have reduced temporarily the appetite for emigration (see Section 2.5). Moreover, transitional arrangements have been, and continue to remain, in place. Another explanation is that macro-economic pull factors are often balanced by non-economic - social, cultural and/or psychological - factors, such as ties to family and friends, and concerns about the different languages and

culture abroad. These factors may lead potential migrants to choose a form of temporary migration.

In some cases, however, non-economic factors such as the existence of community networks can reinforce (or counteract) macro-economic factors. Community networks are interpersonal ties connecting present and future migrants to settlers in the destination country (Massey et al., 1993), which can help migrants with issues such as housing, administration, language, and the search for employment. Several studies have found that an existing network is a very important pull factor (see for example Delbecq and Waldorf, 2010, Pedersen et al. 2008, and Ruysen, Everaert, and Rayp, 2011). Due to mutual support within the emigrated population, this clustering may help explain why dramatic changes in the economic

prospects of individual EU-15 Member States have not led to an abrupt reversal of net emigration flows.

Finally, demographic factors also influence future intra-EU mobility flows over the medium-term. According to the standard population projection by Eurostat<sup>(23)</sup>, the total EU-12 population in 2025 will be 3 % lower than in 2010 with the EU-15 population unchanged over this period. However, for the age group 15-34 years, the decline will be 14 % in EU-15 and 29 % in EU-12. The rapid drop in this age group in EU-12 is expected to significantly reduce the potential pool of migrants from EU-12 to EU-15 because, in general, migrants are fairly young, as they need a certain period of higher income to compensate the sunk costs of migration.

(23) EUROPOP 2010, no migration.

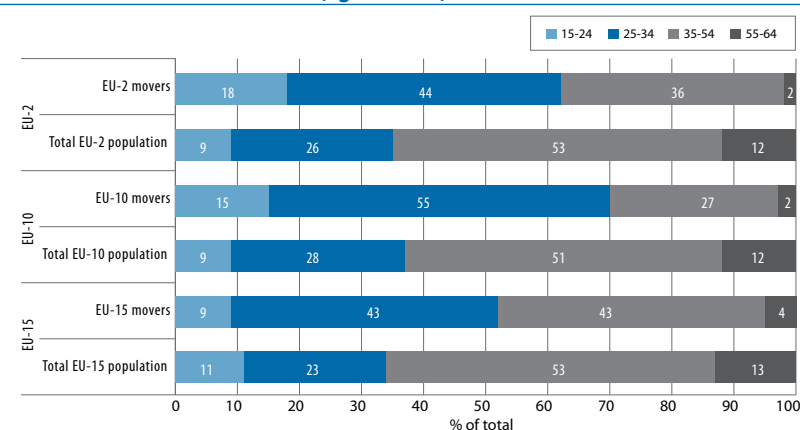


### 3.4. What do recent opinion surveys say about reasons to stay and move?

A 2011 Eurobarometer survey of young people (aged 15 to 35) confirms some of the above conclusions<sup>(24)</sup>, indicating that young people from EU-8+2 would be more willing to work in another EU Member State than the EU-27 average. Unsurprisingly, young people from the poorest Member States (Bulgaria and Romania) show the highest inclination among EU-8+2 countries (more than 70 %), while the lowest inclination was observed in the Czech Republic (55 %, below the EU-27 average of 57.5 %).

In 2010, a Eurobarometer survey on geographical and labour market mobility<sup>(25)</sup> found that, of all possible motives to work abroad, the financial one rated highest at the EU-27 level and for all EU-8+2 Member States<sup>(26)</sup>. At the EU-27 level, culture, lifestyle, and language were also highly rated but this was less so for the EU-8+2 Member States, where good employment opportunities, and the presence of family or friends abroad, often rated higher.

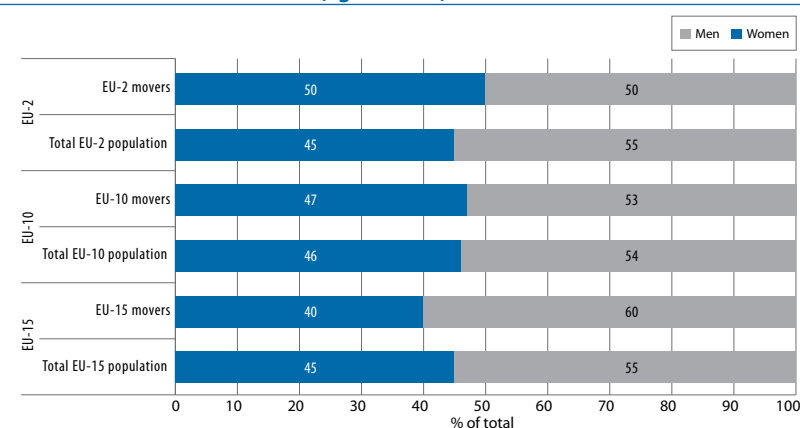
**Chart 16: Age distribution of recent intra-EU movers and total active population (aged 15-64), 2010**



Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent intra-EU movers are defined as economically active working-age foreign nationals resident for seven years or less in another Member State

**Chart 17: Sex distribution of recent intra-EU movers and total active population (aged 15-64), 2010**



Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent intra-EU movers are defined as economically active working-age foreign nationals resident for seven years or less in another Member State

(24) Youth on the move, Flash Eurobarometer No 319b, fieldwork January 2011, publication May 2011 (European Commission, 2011b).

(25) Geographical and labour market mobility, Special Eurobarometer No 337, fieldwork November - December 2009, publication June 2010 (European Commission, 2010b).

(26) Except for Romania.

## 4. MAIN CHARACTERISTICS OF MOBILE WORKERS IN THE EU

In this section the main characteristics of mobile workers in the EU are analysed with a particular focus on the situation of working-age nationals from the EU-10 and EU-2 Member States and their labour market status.

### 4.1. Age and gender

Before focusing on the working-age population (15-64), it is important to note that 85 % of the EU-10 as well as of the EU-2 nationals living in other Member States, are of working-age<sup>(27)</sup> (i.e. aged 15-64) compared to 67 % of the total resident population<sup>(28)</sup>. In other words intra-EU movers are more likely to be in the economically productive period of their life than the native population.

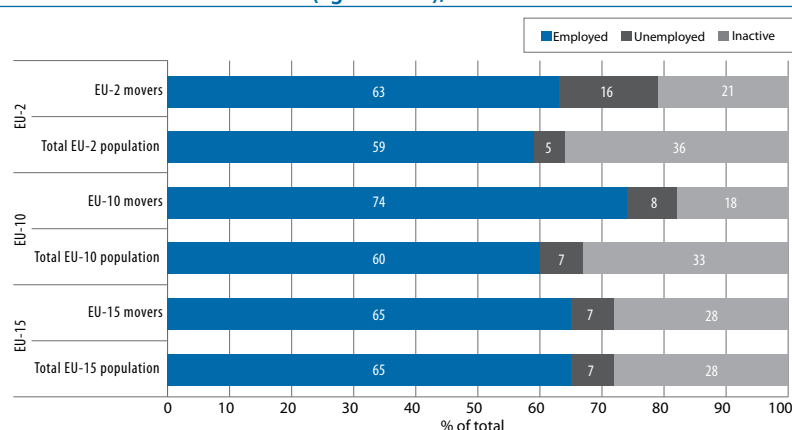
Moreover, among those of working-age (15-64) it appears that recent intra-EU movers are younger than the overall labour force in both the sending and receiving countries (see Chart 16) and that this is particularly true of recent movers from EU-2 and EU-10 countries. Persons under 35 years represent 62 % of EU-2 working-age movers and 70 % of EU-10 working-age movers, compared to only 34 % in the EU-15 labour force. Conversely, close to half of EU-15 movers are aged 35 and more.

In terms of gender (Chart 17), women represent around 45 % of the active population in the receiving as in the sending countries. This share is higher among recent intra-EU movers from EU-2 (50 %) and EU-10 countries (47 %) but much lower among recent movers from EU-15 countries (40 %).

(27) Estimates based on Eurostat migration statistics combined with the EU LFS when necessary.

(28) In the case of EU-15 mobile citizens, the share of those of working-age (15-64) is lower, around 75 %, notably due to the numerous retirees living in other Member States.

Chart 18: Labour market status of recent intra-EU movers and total population (aged 15-64), 2010



Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent intra-EU movers are defined as working-age foreign nationals resident for seven years or less in another Member State

### 4.2. Labour market status and impact of the recession

In 2010, working-age citizens from EU-10 and EU-2 countries had a higher rate of employment on average when they moved abroad than in their countries of origin (Chart 18). This was particularly true in the case of EU-10 movers, with a higher rate of employment than the origin country average (a difference of 14 percentage points). At the same time they were also more likely to be in employment than the residents in the receiving EU-15 countries (+9 percentage points).

As far as EU-2 movers are concerned, their employment rate was higher than the average in the sending countries (+4 percentage points) but somewhat lower than the average in the receiving EU-15 (-2 percentage points). This was due in particular to a higher share of unemployed persons among EU-2 movers (16 %), far above the average among EU-10 movers (8 %), or amongst EU-15 total working-age population (7 %).

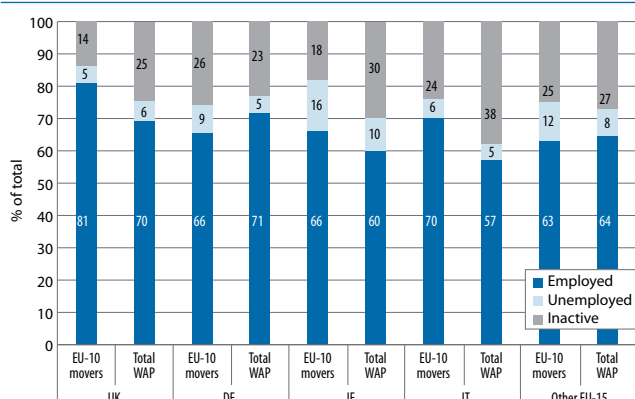
It is to be noted, however, that EU-10 and EU-2 movers both had very low rates of inactivity (respectively 18 and 21 %) reflecting the fact that the main reason for their move abroad was to find work. Moreover, in relation

to their main destination countries, recent EU-2 movers had a higher employment rate than the average of the working-age population in Italy and the UK, or very close to it in other EU-25 Member States (including Spain), with Germany being the only exception (see Chart 20). This means that, wherever they go, EU-2 movers tend to participate to at least the same extent as the average local population. The same applies to the EU-10 movers (Chart 19), again with the exception of Germany.

Finally, the significant gap between the average employment rates of EU-10 and EU-2 movers (11 percentage points, see Chart 18) comes mostly from differences in their distribution across destination countries. Indeed, when considering the main destination countries separately, the employment rate of EU-2 movers is comparable to the average among EU-10 movers<sup>(29)</sup> (see Charts 19 and 20). It is therefore the concentration of EU-2 movers in destination countries having low employment rates (Italy, Spain) which explains their overall less favourable performance, compared to EU-10 movers (concentrated in the UK and Germany, having both relatively high average employment rates).

(29) The case of Spain (not depicted for EU-10 in Chart 19) is interesting since in 2010 EU-2 movers have on average (58 %) a slightly higher employment rate than EU-10 movers (56 %).

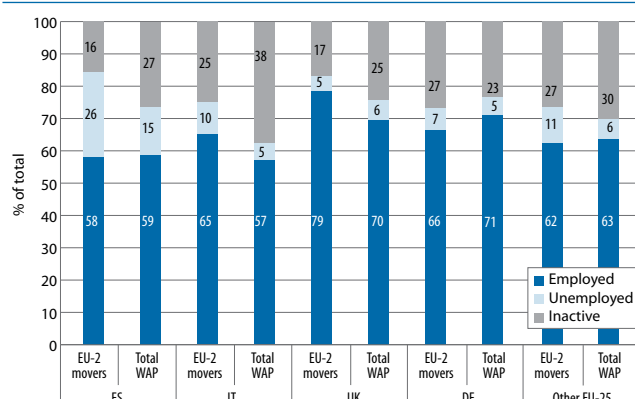
**Chart 19: Employment status of recent EU-10 movers compared to total working-age population (15-64) in the main destination countries, 2010**



Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages)

Note: Recent EU-10 movers are defined as working-age EU-10 nationals resident for seven years or less in an EU-15 Member State. 'WAP' refers to working-age population (15-64)

**Chart 20: Employment status of recent EU-2 movers compared to total working-age population (15-64) in the main destination countries, 2010**



Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent EU-2 movers are defined as working-age EU-2 nationals resident for seven years or less in an EU-25 Member State. 'WAP' refers to working-age population (15-64)

Of course the situation depicted for 2010 is significantly affected by the economic recession that started in 2008 and led to a strong rise in unemployment, notably in countries having received large inflows of EU-12 movers (Spain, the UK, and Ireland). Comparing the employment situation to the pre-crisis period (2007), it appears (see Chart 21) that all groups of foreigners have been affected (declining employment rate and increasing share of unemployment) but it is particularly true for EU-2 recent movers.

The strong rise of the share of unemployment among EU-2 movers (from 9 to 16%) is mainly due the concentration of EU-2 recent movers in Spain (the EU Member State with the highest unemployment rate in 2010) as it accounts for 62% of all unemployed EU-2 recent movers. 26% of working age EU-2 movers living in Spain are unemployed in 2010 (compared to 10% in 2007) which can be explained by their socio-economic characteristics (on-average young and low-skilled) and predominance in sectors strongly impacted by the crisis, in particular the construction sector. Nevertheless, it also reflects the general labour market situation in Spain where all groups of citizenship (including Spanish nationals) have seen their unemployment rate more than doubled between 2007 and 2010 (Table 14).

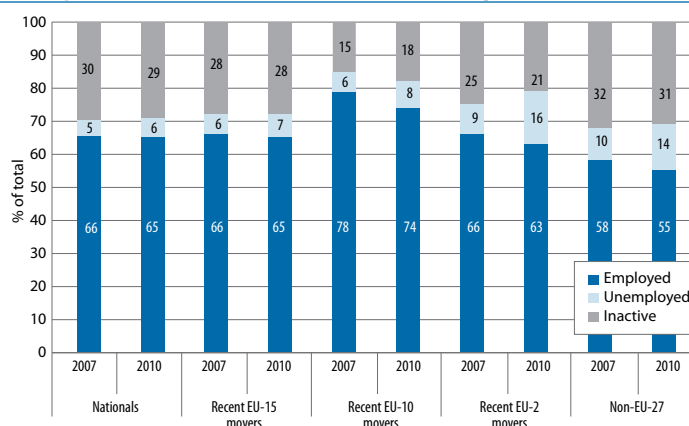
This adverse situation has pushed Spain to request, in July 2011, a temporary suspension of free movement of workers with regard to Romanian workers, arguing a general market disturbance of the Spanish labour market (see also Box 1).

In the other main destination countries, the impact of the crisis on the labour market situation among EU-2 recent movers has been limited (see Table 14). For instance in Italy, where the number of working-age EU-2 nationals has more than doubled between 2007 and 2010 (from 324 000 to 791 000, according

to EU-LFS), the share of those unemployed has increased (from 6 to 9%) but their employment rate has remained high, much greater than all other citizenship groups.

EU-10 nationals that stayed in the destination countries have been affected in different ways by the economic recession. While their unemployment rate remained relatively low in the UK, Italy, and Austria (and evolved more favourably than the national average since 2007), it has strongly increased in Spain and Ireland, the two receiving countries most affected by the crisis.

**Chart 21: The impact of the recession: labour market status of recent intra-EU movers, compared to nationals and non-EU citizens (aged 15-64) in 2007 and 2010**



Source: DG EMPL calculations based on Eurostat, EU LFS (annual data).

Note: Recent intra-EU movers are defined: 1) in 2010 as working-age foreign nationals resident for seven years or less in another Member State, 2) in 2007 as working-age foreign nationals resident for four years or less in another Member State. All non-EU citizens are included (no criteria of duration of residence have been applied).

**Table 14: Evolution of working-age population (in thousands) by group of citizenship and labour market status (in %), in main destination countries of EU-12 nationals, 2007-2010**

Receiving country	Indicator	National		EU-15		EU-2		EU-10		Non-EU-27	
		2007	2010	2007	2010	2007	2010	2007	2010	2007	2010
IT	Total WAP (in thousand)	36 715	36 257	91	115	324	791	69	115	1 747	2 267
	Employed (%)	58	56	61	60	73	69	64	67	66	61
	Unemployed (%)	4	5	3	4	6	9	6	5	6	8
	Inactive (%)	38	39	36	35	20	21	30	28	27	31
ES	Total WAP (in thousand)	26 777	26 708	458	576	662	754	63	79	2 849	3 143
	Employed (%)	65	59	63	56	73	59	73	59	69	55
	Unemployed (%)	5	13	7	14	10	26	(5.8)	23	10	26
	Inactive (%)	29	28	30	30	17	15	21	18	21	19
UK	Total WAP (in thousand)	36 686	36 921	712	752	32	96	543	708	1 861	1 866
	Employed (%)	72	70	73	69	87	77	80	81	60	60
	Unemployed (%)	4	6	5	6	:	:	5	5	6	8
	Inactive (%)	24	24	23	25	:	17	14	14	33	32
DE	Total WAP (in thousand)	48 459	47 809	1 480	1 443	101	116	422	477	3 636	3 701
	Employed (%)	71	73	70	70	64	67	62	65	50	52
	Unemployed (%)	6	5	7	6	9	8	10	9	13	11
	Inactive (%)	23	22	23	24	27	25	28	26	38	37
IE	Total WAP (in thousand)	2 565	2 625	107	99	14	14	175	158	134	106
	Employed (%)	68	60	69	61	64	48	86	66	64	53
	Unemployed (%)	3	9	5	10	:	:	5	16	5	10
	Inactive (%)	29	31	26	28	32	38	10	19	31	37
AT	Total WAP (in thousand)	4 911	4 925	125	143	18	37	75	80	422	421
	Employed (%)	72	73	73	76	61	59	72	68	60	60
	Unemployed (%)	3	3	(4.0)	(3.4)	:	(9.1)	(5.5)	(4.8)	8	7
	Inactive (%)	25	24	23	21	(27.5)	32	22	27	33	33
FR	Total WAP (in thousand)	37 207	37 440	806	792	30	57	32	48	1 460	1 613
	Employed (%)	65	65	67	68	59	56	48	64	46	46
	Unemployed (%)	5	6	5	6	:	(11.6)	(18.6)	(9.2)	13	14
	Inactive (%)	30	29	28	26	33	33	33	27	41	40

Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: 'WAP' refers to working-age population (15-64). ':' indicate figures too small to be reliable. Figures in brackets are of limited reliability. No criteria of duration of residence applied in these tables (all working-age EU-15, EU-10, EU-2, and third-country nationals are included). As a result, some figures may slightly differ from other tables or charts (for instance Charts 19 and 20).

As far as the EU-12 who returned home in 2009 to EU-12 countries are concerned, the 'Mobility in Europe-2010' report<sup>(30)</sup> found, on the basis of EU-LFS data, that they tend to have higher rates of unemployment or inactivity than 'non-migrants'. This could be explained by the difficult economic situation in many EU-12 countries during 2009 (with the exception of Poland) and by the fact that the timing of the return was often not chosen, but imposed by economic circumstances in the destination country (loss of job). Moreover, the abovementioned report points out that 'the figures could be misleading because of returnees not necessarily actively looking for work and having the income earned abroad to support them until a job that suits them come along'.

### 4.3. Self-employed and employees

Restrictions on workers under transitional arrangements only apply to employees, and not to self-employed persons. As a result several sources suggest that there has been a disproportionate share of self-employment amongst recent movers from EU-10 and EU-2, notably to circumvent the restrictions. Some of these self-employed workers may be 'bogus self-employed', i.e. workers that would in normal conditions have the status of employees.

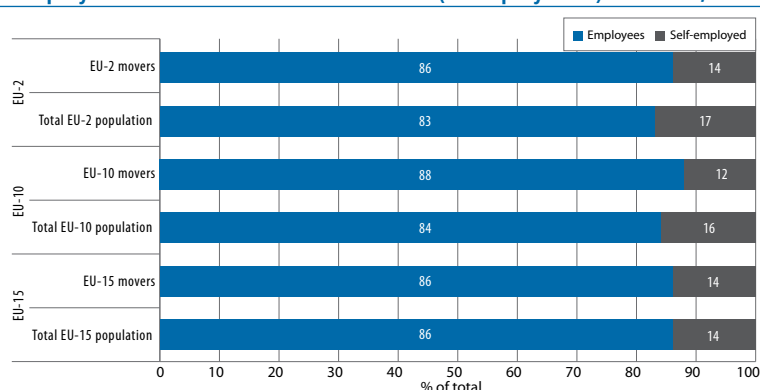
In 2010, the share of self-employment amongst recent movers from EU-10 and EU-2 in employment was generally lower (see Chart 22) than the share of self-employment in the sending countries, and equal to, or lower, than the share of self-

employment in the EU-15 receiving countries. Nevertheless the share of self-employment amongst recent movers from EU-10 and EU-2 has increased substantially since the same calculation was made for 2007<sup>(31)</sup> (see European Commission, 2008a).

Moreover, there seems to be significant country differences. Comparing the share of self-employment among various groups of recent intra-EU movers it appears that it is much higher amongst the group for which salaried employment is, or has been, subject to restrictions on the free movement of workers (see Chart 23). For instance, in the UK (whose labour market was open to EU-10 workers from 1 May 2004), the share of self-employment amongst EU-10 recent movers is very

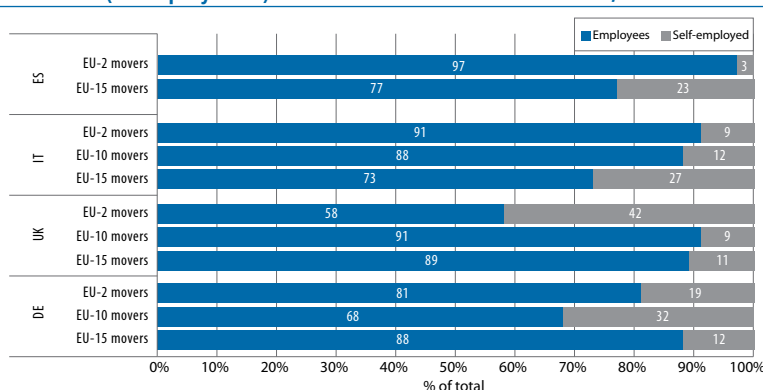
(31) From 6% in 2007 to 14% in 2010 for EU-2 movers and from 9% to 12% for EU-10 movers.

(30) European Commission (2010a).

**Chart 22: Share of self-employed citizens and employees among overall employment and recent intra- EU movers (in employment) in the EU, 2010**

Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Intra-EU movers are defined as working-age foreign nationals resident for seven years or less in another Member State

**Chart 23: Share of self-employed and employees among recent intra-EU movers (in employment) in selected EU-15 Member States, 2010**

Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Intra-EU movers are defined as working-age foreign nationals resident for seven years or less in another Member State

low, while the share is much higher among EU-2 recent movers upon which restrictions apply. As far as Germany is concerned, both EU-2 and EU-10 have faced restrictions to their access to the labour market, and the share of self-employment is relatively high in both groups (respectively 19 and 32 %).

On the contrary, Spain which has applied free movement since 1 January 2009 to EU-2 citizens, has a very low share of self-employment amongst the recent mobile workers from EU-2 countries (3 %) compared to the 8 % share in 2008 before the opening of the labour market. Italy, for its part, has moderate shares of self-employment among EU-10 and EU-2 workers, which is consistent with its relatively open labour market.

For the UK, Kausar (2011) confirmed that the share of self-employed among EU-2 workers has been significantly higher than for native, EU-8, and non-EU workers. Fellmer and Kolb (2009) reported that in Germany, many workers from EU-8 Member States, especially in the construction sector, were hired by companies but were registered as self-employed.

#### 4.4. Employment structure by economic activity

The employment structure by sector varies significantly between mobile workers and the overall resident population of sending and receiving countries, as well as between nationality groups of mobile workers (Table 15).

As far as EU-15 movers are concerned, they are over-represented in the accommodation and food service activities, professional, scientific, and technical activities, and information and communication. On the other hand, they are less likely to work in the health sector, wholesale and retail trades, public administration, or agriculture.

Mobile workers from the EU-10 Member States tend to work mainly in manufacturing, wholesale and retail trade, accommodation, and food service activities and are also over-represented in construction, administrative and support activities, and activities of households as employers (i.e. private personnel<sup>(32)</sup>).

As for mobile workers from EU-2 countries, compared to the average in the EU-15 countries, their employment is concentrated in a limited number of sectors: construction, activities of households as employers, and accommodation and food service activities. While these three sectors represent more than half (53 %) of all recent EU-2 in employment, their aggregate share in local employment in EU-15 countries is only about 14 %.

Both EU-10 and EU-2 recent movers are under-represented in the public administration, education, human health, social work and professional, and scientific and technical activities.

In terms of the share of recent intra-EU movers of total employment in EU-15 countries, the same patterns can be found (Table 16). The share of EU-2 amongst the group "activities of households as employers" is particularly high (around 5 % of all workers in this sector in the EU-15 Member States) which is explained by the levels recorded in Italy (11 %) and Spain (8 %). This is, however,

(32) This corresponds to the NACE Rev. 2, Category 97 which includes the activities of households as employers of domestic personnel such as maids, cooks, waiters, valets, butlers, laundresses, gardeners, gatekeepers, stable-lads, chauffeurs, caretakers, governesses, babysitters, tutors, secretaries, etc.



**Table 15: Employment of total resident populations, recent intra-EU movers and third-country nationals by economic activity, 2010 (% of total employment by group)**

Economic activity (Nace Rev. 2)		EU-15		EU-10		EU-2		Third-country nationals
		Total resident population	EU-15 recent movers	Total resident population	EU-10 recent movers	Total resident population	EU-2 recent movers	
A	Agriculture, forestry and fishing	2.9	(0.9)	8.5	3.2	21.7	6.9	3.6
B	Mining and quarrying	0.2	:	1.0	:	1.1	:	(0.3)
C	Manufacturing	14.9	12.7	20.1	22.1	19.3	11.2	9.6
D	Electricity, gas, steam and air conditioning supply	0.7	:	1.1	:	1.4	:	:
E	Water supply; sewerage, waste management and remediation activities	0.7	:	1.0	:	0.9	:	(0.2)
F	Construction	7.6	7.0	8.4	10.4	8.2	21.2	8.8
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	14.1	10.3	14.5	15.0	14.0	7.2	11.4
H	Transportation and storage	4.9	3.8	6.2	6.2	5.2	3.6	3.5
I	Accommodation and food service activities	4.8	10.1	3.1	13.4	2.9	14.2	13.0
J	Information and communication	3.1	6.8	2.3	1.7	1.7	:	3.1
K	Financial and insurance activities	3.3	5.4	2.3	(1.1)	1.6	:	2.1
L	Real estate activities	0.8	:	0.9	:	0.2	:	(0.3)
M	Professional, scientific and technical activities	5.4	9.2	3.4	2.7	2.0	(1.1)	3.6
N	Administrative and support service activities	4.3	5.5	2.6	7.2	1.9	5.9	7.1
O	Public administration and defence; compulsory social security	7.5	2.1	7.0	:	5.9	:	1.7
P	Education	7.6	7.2	7.8	2.1	4.8	:	4.3
Q	Human health and social work activities	11.5	8.9	6.2	7.1	4.7	4.7	8.6
R	Arts, entertainment and recreation	1.7	2.9	1.4	(1.1)	0.7	:	1.5
S	Other service activities	2.6	2.2	1.7	1.7	1.3	3.0	2.8
T	Activities of households as employers, ...	1.4	(1.5)	0.2	2.5	0.4	17.5	13.6
U	Activities of extraterritorial organisations and bodies	0.1	1.8	(0.0)	:	:	:	0.6

Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Intra-EU movers are defined as working-age foreign nationals resident for seven years or less in another Member State. Third-country nationals are defined as working-age foreign nationals resident for seven years or less in an EU Member State. ":" indicate figures too small to be reliable. Figures in brackets are of limited reliability. For some activities (e.g. agriculture, construction, accommodation, and food service activities) the LFS may understate the number of employed due to underestimation of seasonal workers.

**Table 16: Share of recent intra-EU movers and third-country nationals among EU-15 employment by economic activity, 2010 (per 1 000 employed in activity)**

Economic activity (Nace Rev. 2)		EU-15 recent movers	EU-10 recent movers	EU-2 recent movers	Third-country nationals
A	Agriculture, forestry and fishing	(1.6)	5.8	10.5	20.0
B	Mining and quarrying	:	:	:	(20.3)
C	Manufacturing	4.3	7.5	3.2	10.0
D	Electricity, gas, steam and air conditioning supply	:	:	:	:
E	Water supply; sewerage, waste management and remediation activities	:	:	:	(5.8)
F	Construction	4.6	6.9	11.9	18.2
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	3.7	5.4	2.0	12.7
H	Transportation and storage	3.9	6.6	3.2	11.1
I	Accommodation and food service activities	10.6	14.5	12.6	43.3
J	Information and communication	11.1	2.7	:	16.2
K	Financial and insurance activities	8.3	1.7	:	10.1
L	Real estate activities	:	:	:	(6.3)
M	Professional, scientific and technical activities	8.5	2.5	(0.8)	10.6
N	Administrative and support service activities	6.6	8.9	5.9	26.6
O	Public administration and defence; compulsory social security	1.4	:	:	3.5
P	Education	4.8	1.4	:	9.1
Q	Human health and social work activities	4.0	3.2	1.7	12.0
R	Arts, entertainment and recreation	8.7	(3.0)	:	14.2
S	Other service activities	4.3	3.3	4.9	17.1
T	Activities of households as employers, ...	5.2	9.2	53.6	144.5
U	Activities of extraterritorial organisations and bodies	86.5	:	:	88.7

Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent intra-EU movers and third-country nationals are defined as working-age foreign nationals resident for seven years or less in an EU-15 Member State. ":" indicate figures too small to be reliable. Figures in brackets of limited reliability. For some activities (e.g. agriculture, construction, accommodation and food service activities) the LFS may understate the number of employed due to underestimation of seasonal workers.



Table 17: Sectoral share in employment and employment growth (2007-2010) in the EU-15 countries by group of citizenship

Sectors	All EU-15 residents			EU-15 foreign nationals			EU-10 foreign nationals			EU-2 foreign nationals			Third-country nationals		
	Share 2007	Share 2010	Emp. growth	Share 2007	Share 2010	Emp. growth	Share 2007	Share 2010	Emp. growth	Share 2007	Share 2010	Emp. growth	Share 2007	Share 2010	Emp. growth
A	3.2	2.9	-12.8	1.5	0.9	-40.2	2.6	2.6	18.5	6.8	6.0	26.3	2.7	3.1	19.4
B-E	18.2	16.5	-11.0	18.3	16.0	-12.1	21.2	19.7	12.0	14.1	13.6	37.9	17.4	15.2	-10.1
F	8.3	7.6	-9.9	9.5	8.9	-5.5	14.1	11.1	-5.6	26.6	21.8	17.5	14.2	10.7	-22.3
G-J	25.1	26.9	5.2	27.1	30.1	11.6	30.8	34.2	33.8	23.1	25.2	56.1	29.6	31.3	8.9
K-N	13.9	13.7	-3.5	16.6	16.6	0.6	11.5	12.3	28.7	6.9	7.5	56.1	12.4	12.8	6.0
O-Q	25.0	26.5	4.3	17.7	19.1	8.4	11.3	12.7	35.1	4.7	6.0	85.6	11.0	12.8	20.8
R-U	6.3	5.9	-9.4	9.3	8.4	-9.4	8.3	7.4	6.7	17.7	19.8	59.5	12.7	14.2	15.4
Total	100	100	-2.0	100	100	0.5	100	100	20.5	100	100	43.2	100	100	3.2

Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: No criteria of duration of residence applied in these tables (all EU-15, EU-10, EU-2, and third-country nationals in employment are included). In order to draw a time comparison 2007-2010 and due to the modification of the sectoral nomenclature used (from NACE Rev. 1.1 to NACE Rev. 2), the sectors have been grouped in larger categories: A: Agriculture, forestry and fishing. B-E: Mining and quarrying; Manufacturing; Electricity, gas, etc.; Water supply; sewerage, waste management, etc. F: Construction. G-J: Wholesale and retail trade; repair of motor vehicles and motorcycles; Transportation and storage; Accommodation and food service activities; Information and communication. K-N: Financial and insurance activities; Real estate activities; Professional, scientific, and technical activities; Administrative and support service activities. O-Q: Public administration and defence; compulsory social security; Education; Human health and social work activities. R-U: Arts, entertainment and recreation; Other service activities; Activities of households as employers; Activities of extraterritorial organisations and bodies.

much less than the share constituted by recently arrived third-country nationals (14.5 %).

More generally, the recently arrived third-country nationals have a higher share of local employment in the EU-15 countries than recent EU movers from EU-12 Member States – with the exception of manufacturing and construction (where the shares are roughly equal).

This 2010 sectoral distribution of employment in EU-15 has, in many Member States, been affected by the recession, with the sectors most affected since 2007 being manufacturing, construction, and to a certain extent, 'other services' (see Table 17). These declines have, however, not substantially affected the overall sectoral distribution of employment in the EU-15 countries.

As far as mobile workers from EU-10 and EU-2 are concerned, their global level of employment in the EU-15 countries increased strongly over the period 2007-2010 (by 20.5 % and 43.2 % respectively) due to the significant inflows of workers. However, growth has been lowest in the construction sector which has led to a fall in the share of the construction sector in the employment of EU-10 (from 14 to 11 %) and EU-2 movers (from 27 to 22 %) living in EU-15 countries. This is also to a certain extent the case within the manu-

facturing sector. On the other hand, the sectors with the stronger growth of employment of EU-10 and EU-2 movers have been, at EU-15 level, trade, accommodation, food services, transportation, and information and communication (i.e.: mainly 'accommodation and food services' for both EU-10 and EU-2, and wholesale and retail trade for EU-10 workers).

#### 4.5. Employment structure by occupation

Around 57 % of the EU-15 recent movers are employed in high-skilled occupations (ISCO Categories 1, 2, and 3), 35 % in occupations requiring intermediate levels of education (ISCO Categories 4 to 8), and less than 10 % in elementary occupations (ISCO Category 9), see Table 18. This confirms the profile of EU-15 recent movers as being, on average, older and more highly-skilled (see section on educational level below) than the other groups of intra-EU movers.

The profile of the EU-10 and EU-2 recent movers is radically different: they are concentrated in occupations requiring low or intermediate qualifications, with highly-skilled occupations representing only 17 % of EU-10 movers and 7 % of EU-2 movers. Elementary occupations account for as much as 40 % of the EU-2 movers in employment and around 30 % of EU-10 movers as against only

10 % of all jobs in EU-15 Member States. A similar over-representation can be found in 'plant and machine operators and assemblers' among the EU-10 movers and for the 'craft and related trade workers' among the EU-2 movers.

The occupational distribution among recently arrived third-country nationals is different, with a higher share of highly-skilled occupations (22.6 %). At the other end of the skill spectrum, few are employed as 'craft and related trades workers' and 'plant and machine operators and assemblers' while the categories 'service workers and shop and market sales workers' (21.5 %) and 'elementary occupations' (32 %) are by far the most popular among recently arrived third-country nationals.

This occupational distribution on the basis of citizenship is also visible in the share of recent intra-EU movers in total employment in EU-15 Member States, by occupation (Table 19). The occupations in which the EU-10 recent movers have the highest share of total employment are the elementary occupations (16 out of 1000 jobs in EU-15) followed by 'plant and machine operators and assemblers' (10 out of 1 000 jobs in the EU-15) and by 'craft and related trade workers' and 'service workers and shop and market sales workers'. In all other occupations, they have a very low share of total employment.

**Table 18: Employment of total resident populations, recent intra-EU movers and third-country nationals by occupation, 2010**  
(% of total employment by group)

Occupation (ISCO)	EU-15		EU-10		EU-2		Third-country nationals
	Total resident population	EU-15 movers	Total resident population	EU-10 movers	Total resident population	EU-2 movers	
1 Legislators, senior officials and managers	9.0	12.6	6.9	4.8	3.4	1.5	4.4
2 Professionals	14.8	27.6	15.2	6.6	11.8	2.5	11.4
3 Technicians and associate professionals	17.6	16.8	14.9	5.2	9.7	3.3	6.7
4 Clerks	11.7	7.8	7.6	4.7	5.6	2.5	5.8
5 Service workers and shop and market sales workers	14.6	14.4	13.0	16.9	13.3	15.9	21.5
6 Skilled agricultural and fishery workers	2.5	1.4	6.9	1.1	17.1	2.5	1.3
7 Craft and related trades workers	12.4	8.1	15.9	15.6	15.7	24.0	10.8
8 Plant and machine operators and assemblers	7.3	4.1	11.7	14.5	11.7	7.5	6.0
9 Elementary occupations	10.0	7.3	7.8	30.5	11.8	40.4	32.1

Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent intra-EU movers are defined as working-age foreign nationals resident for seven years or less in another Member State. Third-country nationals are defined as working-age foreign nationals resident for seven years or less in an EU Member State.

**Table 19: Share of recent intra-EU movers and third-country nationals among EU-15 employment by occupation, 2010**  
(per 1 000 employed in occupation)

Occupation (ISCO)	EU-15 movers	EU-10 movers	EU-2 movers	Third-country nationals
1 Legislators, senior officials and managers	7.1	2.8	0.7	7.8
2 Professionals	9.5	2.2	0.7	12.2
3 Technicians and associate professionals	4.8	1.4	0.8	5.9
4 Clerks	3.4	2.0	0.9	7.8
5 Service workers and shop and market sales workers	5.0	5.9	4.6	23.3
6 Skilled agricultural and fishery workers	2.8	2.3	4.3	8.4
7 Craft and related trades workers	3.3	6.4	8.3	13.7
8 Plant and machine operators and assemblers	2.8	10.1	4.4	12.7
9 Elementary occupations	3.8	15.9	17.3	50.1

Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent intra-EU movers and third-country nationals are defined as working-age foreign nationals resident for seven years or less in an EU-15 Member State.

As for the EU-2 recent movers, they fill 17 out of 1 000 jobs in elementary occupations and 8 out of 1 000 jobs for 'craft and related trade workers', but account for a negligible (less than 0.1 %) share of total employment in the first four occupations listed in Table 19, i.e. those that require higher (or intermediate) qualifications.

For their part, EU-15 recent movers have a relatively high employment share amongst professionals (around 1 %) and legislators, senior officials, and managers (0.7 %).

Finally, recently arrived third-country nationals fill 50 out of 1 000 jobs in elementary occupations and 23 out of 1 000 in 'service workers, shop and market sales workers'. For all other occupations, their share in total employment in EU-15 Member States is around or lower than 1 %.

## 4.6. Educational attainment

The skill level of mobile workers is particularly important in terms of assessing the impact of mobility flows on the economies of the sending and receiving countries. The departure of large numbers of highly skilled workers may have a negative impact for the sending country in terms of "brain drain" while, for the receiving countries, an inflow of high-skilled workers will tend to raise overall productivity. Inflow of low-skilled workers may also be positive for receiving countries, if they enter occupations or sectors with labour shortages.

It should be noted that the analysis developed below is based on the highest educational attainment as declared in the Labour force sur-

vey which may imply certain caveats. Indeed, this source has some problems in recording the educational attainment of foreigners, in particular if qualifications were obtained outside the host country. More generally, educational attainment is the most commonly used proxy for 'skill level'. However, this proxy does not take account of an individual's experience or their on-the-job training. Around 22 % of EU-10 recent movers have a high educational attainment, 61 % are medium-skilled, and around 17 % low-skilled (Chart 24). EU-2 recent movers are, on average, less qualified with only 14 % having a tertiary education, half of them secondary education, and the rest (34 %) being in the low-educated category. Therefore, as far as sending countries are concerned, there does not seem to be a strong brain drain effect given that the share of

the high-skilled persons among the EU-10 recent movers is lower (22%) than the share in the origin countries' active population (25%). This is even more so where EU-2 recent movers are concerned, with a highly educated share of 14%, much below the 19% in the origin countries' active population.

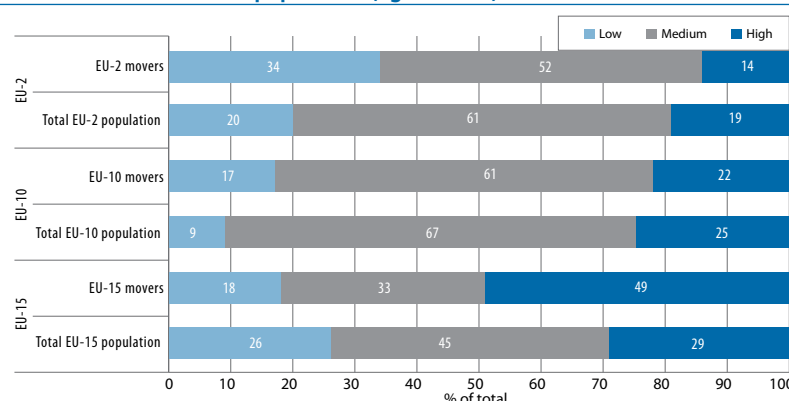
Compared to the labour force in the receiving countries (EU-15), the share of those having a medium level of education among EU-10 and EU-2 recent movers is significantly higher. However, the share of highly-educated is higher in the active population of EU-15 (29%) than among EU-10 (22%), and especially EU-2 recent movers (14%).

Finally, a large gap between the two groups of recent movers exists at the lower skill level. For the EU-10 recent movers the share of low-educated is much lower (17%) than in the average EU-15 population (26%), while for the EU-2 recent movers it is much higher (34%). The educational attainment pattern of EU-15 movers is completely different since almost half of them are highly-educated (49%).

A comparison of the occupational distribution of recent EU movers compared with their levels of education suggests a significant 'downskilling' of recent movers from the EU-10 and EU-2 countries<sup>(33)</sup>. This is especially true for EU-10 recent movers, 30% of whom work in elementary occupations even though only 17% are categorised as low-skilled.

At the other end of the skills spectrum we see that, for both EU-10 and EU-2 recent movers, the proportion

**Chart 24: Educational attainment of recent intra-EU movers and total active population (aged 15-64), 2010**



Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent intra-EU movers are defined as economically active working-age foreign nationals resident for seven years or less in another Member State.

of those who are high-skilled (respectively 22 and 14%) is higher than the proportions in occupations that require high-skills (respectively 17 and 7%). Overall, the data on recent EU movers working in occupations requiring less than their educational level (e.g. high-skilled working in intermediary and low skilled occupations and medium-skilled working in low skilled occupations) suggests that the share of workers employed in occupations below their qualifications level is over 30% for EU-10 as well as for EU-2 recent movers<sup>(34)</sup>.

What explains this so-called downskilling? According to Holland et al. (2011), the fact that many recent EU movers from EU-10 and EU-2 countries have come for a limited

duration, mainly to take advantage of better employment prospects and higher salaries than in their countries of origin, could explain why they have been inclined to accept lower skilled jobs than they would have in their home country. In order to explain why many high-skilled recent movers are not employed in high-skilled occupations, Wadsworth (2010) suggests the same reasons, but also points out the possible unwillingness of employers to employ EU-8 and EU-2 citizens in high skilled jobs given difficulties in both language and a lack of information about the value of qualifications and skills acquired in another country (or difficulties in having them formally recognised).

Finally, the recession and its impact on return mobility may have influenced the educational composition of EU movers. The 'Mobility in Europe-2010' report<sup>(35)</sup> found, on the basis of EU-LFS data, that the return migration in 2009 was disproportionate among those with upper secondary level qualifications rather than those with tertiary education or only basic schooling. This finding could be consistent with the recession hitting those with vocational qualifications working in manufacturing and construction in particular.

(33) This comparison has already been made in the 2008 version of 'Employment in Europe' (see chapter 2) and is based on a classification of ISCO occupations in three groups: those requiring high skills (ISCO 1-3), those requiring intermediate skills (ISCO 4-8) and the low-skilled occupations (ISCO 9). The share of each group of occupations is compared to the distribution of the educational level: high skilled (ISCED 5-6), medium (ISCED 3-4) and low (ISCED 0-2). For more details, see correspondence table in 'Employment in Europe -2008', page 104.

(34) One can also calculate the share of recent EU movers working in occupations that require in theory a higher educational attainment than the one they currently have (low-skilled working in intermediary and high-skilled occupations and medium-skilled working in high skilled occupations). It gives the following figures: 18.5 % among EU-2 workers and 15.8% among EU-10 workers. It should, however, be noted that most of these "theoretically under-qualified" workers are low-skilled workers in the following occupations: 'craft and related trades workers', 'plant and machine operators and assemblers', and 'services workers and shop and market sales workers'. This shows the limitation of the correspondence established between educational (ISCED) and the occupation (ISCO) classifications since the ISCO occupations at 1-digit level are broad categories which include jobs requiring very different levels of skills.

(35) European Commission (2010a).

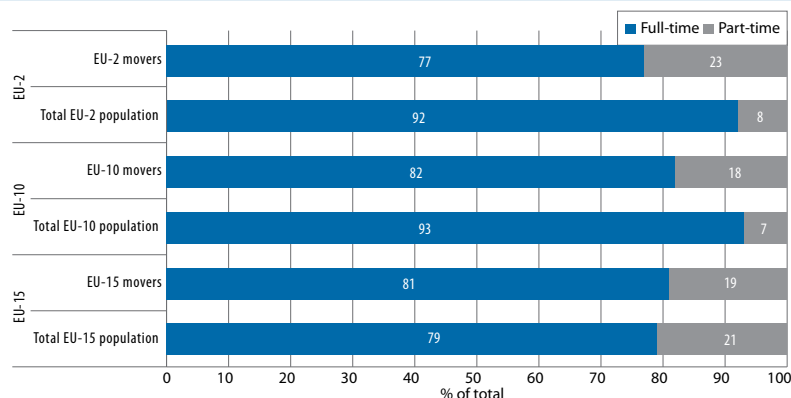
## 4.7. Other labour-related characteristics

In terms of working time, recent intra-EU movers seem to follow the overall pattern in the EU-15 receiving countries, with around 20 % working part-time and the rest working full-time (Chart 25), although somewhat more EU-2 movers tend to work part-time (23 %).

In terms of the type of work contract (Chart 26), one-third of EU-2 recent movers (being employees) have fixed-term contracts, compared with 15 % of EU-10 recent movers, and 19 % for EU-15 recent movers. The high share of fixed term contracts among recent EU-2 movers is linked to the substantial proportion of them working in Spain where some 25 % of contracts are fixed term (the highest proportion in the EU). In fact in Spain over 50 % of EU-2 employees have fixed term contracts.

With regard to EU-10 movers, it is important to note that their share of fixed-term contracts is low due to their low share (9 %) in the main destination countries, the UK and Ireland. In these countries, the distinction between fixed-term and indefinite duration contracts cannot be interpreted in the same way as other Member States since there is a low level of protection against dismissal, whatever the form of contract. In other main receiving countries, the share of fixed-term contracts among EU-10 employees is much higher (around 30 % in Germany and 25 % in Austria and Italy).

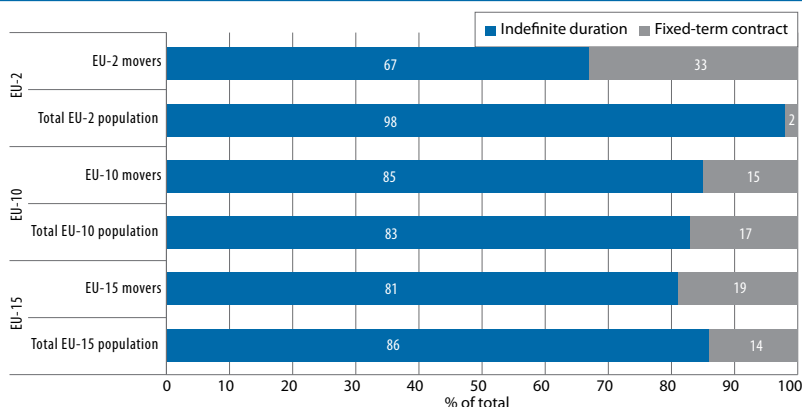
**Chart 25: Share of full-time and part-time jobs among recent intra-EU movers and total employment, 2010**



Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent intra-EU movers are defined as working-age foreign nationals resident for seven years or less in another Member State.

**Chart 26: Share of fixed-term contract versus indefinite duration contract, among recent recent intra-EU movers and total employees, 2010**



Source: DG EMPL calculations based on Eurostat, EU LFS (annual averages).

Note: Recent intra-EU movers are defined as working-age foreign nationals resident for seven years or less in another Member State.

## 5. ECONOMIC IMPACT OF INTRA-EU MOBILITY

### 5.1. Economic growth, GDP per capita

Economic theory predicts that migration will affect (potential) GDP: in the receiving country, labour migration increases the labour force and is, as a result, expected to raise GDP while the opposite is true for the sending country.

Intra-EU mobility can raise the overall EU GDP if it improves labour allocation, through a better match of workers' skills and job vacancies, which would boost overall productivity. While changes in the labour force affect GDP, migration does not necessarily change GDP per capita significantly. It is even likely that GDP per capita in the receiving country is reduced initially. As it takes time for the capital stock to adjust, productivity could fall initially.

Over time, GDP per capita can be expected to rise again as the share of the working-age population (in the total population) is boosted by the immigration of mostly young workers (D'Auria, Mc Morrow, and Pichelmann, 2008). The extent of these effects depends, however, on the skill characteristics of the migrant population and how these relate to the skills of the native population and the job vacancies in the receiving countries.

Most empirical studies analysing the economic impact of migration confirm these theoretical expectations. This is also the case with studies analysing specifically the recent EU enlargement(s), such as D'Auria, Mc Morrow and Pichelmann, 2008, Brücker et al., 2009, and Baas, Brücker and Hauptmann, 2009. These studies find a significant long-term increase in EU GDP and EU GDP per capita (both of 0.2-0.3%) following the intra-EU population flows since 2004. For EU-15 Member States, these studies predict a slightly higher (long-term) increase

in GDP (0.3-0.4%), but also a minor decrease in GDP per capita, as a result of migration from EU-8. EU-8 countries would, in turn, see a sizeable decrease in GDP (of 1-2%), but a slight increase in GDP per capita (0 to 0.5%).

In what follows, the focus will be on a recent analysis by Holland et al., 2011. This study simulates the impact of the observed flows from EU-8+2 to EU-15 over the period 2004-2009, using the National Institute Global Econometric Model (NiGEM). The estimates of long-term effects are based on the assumption that all the population shifts that have occurred up to 2009 were permanent, with no further assumptions about population shifts since then<sup>(36)</sup>. The GDP impact for an individual Member State is evidently closely related to the relative size of the net cumulated population flows from/to that Member State, relative to the size of the domestic population. The simulation results presented in Table 20 have also been fine-tuned to take account of the age structure of the migrants relative to the host and sending countries<sup>(37)</sup>.

According to Holland et al., 2011, the population flows have raised the long-term level of EU-15 potential output by up to 0.9%, with flows from EU-8 and EU-2 each contributing about half of the impact. This impact seems very large compared to the studies cited above. However, those studies considered only the migration flows up to 2007 and were restricted to the impact of flows from EU-8 to EU-15. The exception to the latter restriction was Brücker et al., 2009, which estimated a long-term EU-15 GDP effect of 0.3% for EU-2 flows, adding up to a total effect of 0.6% for EU-8+2. Taking into account the

flows over two more years would then yield a larger GDP effect given that about one-third of the present stock of EU-8+2 migrants in EU-15 have arrived since 2007 (see Section 2, on the extent of intra-EU mobility).

According to Holland et al., 2011, the biggest boost to GDP came from population flows to Ireland and the UK from EU-8 and to Spain and Italy from EU-2. However, the long-term impact on GDP per capita of EU-15 Member States is expected to be negligible.

The shock to the sending countries is seen to have been much larger than to the receiving countries. The biggest effects are estimated to have been in Bulgaria, Romania, and Lithuania, where the potential level of output may be permanently reduced by 5-11%. Also for Latvia and Estonia, the reduction will reach 3% of potential output. However, the impact on GDP per capita is significantly smaller – though it remains negative in most of the sending countries. GDP per capita may decline by 0.5 to 3% for Romania, Bulgaria, Latvia, Estonia, Lithuania, and Slovakia. The study concluded also that remittances can partially offset the negative growth impact in the short to medium term. However, remittances cannot mend the longer-term problem of lower potential growth as a result of lower labour input.

Holland et al., 2011, also developed a model of the location decision of the mobile workers from EU-8+2 to EU-15, which makes it possible to assess the role of the transitional arrangements in the location decision, taking account of macro-economic and demographic developments (see main results in Box 2). One of the findings is that the long-term effect of the transitional arrangements can be expected to raise the potential level of output in Ireland, the UK, and Sweden by 0.1% or more. By contrast, they are expected to reduce the level of potential output in Germany, Austria, Belgium, and Denmark by at least the same amount.

(36) Annex 2 provides more information on the econometric background to Holland et al., 2011.

(37) Section 4, on the characteristics of mobile citizens, showed that the share of 15-64 age olds is larger in the migrated than in the native population. An adjustment, based on the EU LFS statistics, was appropriate as a result. The study also fine-tuned for differences in productivity levels. These results are not presented here.



Table 20: Long-term impact on output of EU-8+2 migration to EU-15, age adjusted

EU-8 migration to EU-15			EU-2 migration to EU-15		
	GDP	per capita		GDP	per capita
Belgium	0.4	0.1	Belgium	0.3	0.1
Denmark	0.6	0.1	Denmark	0.1	0.0
Finland	0.2	-0.0	Finland	-0.1	-0.1
France	0.0	0.0	France	0.1	0.0
Germany	0.2	0.0	Germany	0.1	-0.0
Greece	0.1	0.0	Greece	0.6	0.1
Ireland	3.0	0.0	Ireland	0.3	0.0
Italy	0.2	0.0	Italy	1.3	0.1
Netherlands	0.3	0.0	Netherlands	0.1	0.0
Austria	0.4	0.0	Austria	0.5	0.0
Portugal	0.1	0.0	Portugal	0.3	0.0
Sweden	0.4	-0.0	Sweden	0.0	-0.1
Spain	0.2	0.0	Spain	1.7	0.1
United Kingdom	1.2	0.2	United Kingdom	0.2	0.0
<b>EU-15</b>	<b>0.4</b>	<b>0.1</b>	<b>EU-15</b>	<b>0.4</b>	<b>-0.0</b>
Czech Republic	-0.2	0.1	Bulgaria	-5.4	-1.7
Estonia	-3.0	-0.7	Romania	-10.6	-3.1
Hungary	-0.4	0.2	<b>EU-2</b>	<b>-9.4</b>	<b>-3.0</b>
Lithuania	-6.0	-1.4			
Latvia	-3.3	-0.7			
Poland	-1.8	0.7			
Slovenia	-0.4	-0.1			
Slovakia	-2.3	-0.5			
<b>EU-8</b>	<b>-1.5</b>	<b>0.4</b>			

Source: Holland et al., 2011. Estimates not available for LU (see annex 2).

It should be noted that the studies referred to above, when estimating the impact of intra-EU mobility on GDP, only consider in their calculations foreign workers that are 'usually resident' in the destination country. This is mainly due to data availability. Therefore 'posted workers' (see Section 2) are not taken into account. The same applies to seasonal workers and short-term mobile workers who are not picked up in population statistics.

## 5.2. Labour market

While the impact of migration on potential output of receiving countries is estimated to be positive, even in per capita terms, migration continues to raise concerns regarding the labour market impact for native workers in EU-15 Member States. At the current stage, a basic graphical or statistical analysis of recent labour market developments in EU-15 Member States will not be able to single out the impact of immigration, as the effects of the crisis still dominate labour market developments.

Theoretically, an increase in the labour supply due to immigration lowers the price of substitute factors and raises the price of complementary factors. The labour market outcome in the receiving country depends, as a result, on the degree of substitution between the skills of immigrants and natives. In an open economy, the subsequent expansion of labour-intensive activities renders the overall labour market outcomes uncertain.

Immigration may in any case have positive labour market effects in terms of relieving labour shortages in segments where native workers are absent. Moreover, migrants react fast to regional differences in economic opportunities, increasing labour market efficiency (Diez Guardia and Pichelmann, 2006). One caveat is that the standard theory assumes that wages adjust and labour markets clear.

As migration is a growing phenomenon worldwide, research on its labour market impact has expanded significantly. This literature has

been comprehensively surveyed in Okkerse, 2008, while two meta-analyses of the literature can be found in Longhi, Nijkamp, and Poot, 2008, and Longhi, Nijkamp, and Poot, 2010. A general conclusion, common to most studies, is that the wage and employment effects of an immigration shock are very small. Effects that do exist tend to be short-term and concentrated on natives or past immigrants who are close substitutes to these immigrants in labour market terms (Kerr and Kerr, 2011).

For an empirical assessment of the labour market impact of increased intra-EU mobility following the recent EU enlargement(s), we return to the four studies analysed under the GDP impact (Section 5.1). These confirm the very limited long-term impact of post-enlargement mobility flows on real wages and unemployment. In general, they find a short-term decline in real wages and a short-term increase in unemployment in Member States that have received large inflows.



As a result of the inflow from EU-8, Holland et al., 2011, found a significant negative long-term effect on real wages in Ireland (-1.6%) and the UK (-0.4%), while for EU-15 as a whole, the long-term effect on real wages is comparable to the findings of D'Auria, Mc Morrow and Pichelmann, 2008, at -0.1 to -0.2%. As for the inflow from EU-2, Holland et al. (2011) estimated that it had a larger effect on real wages, specifically for Spain and Italy (-0.7% for both countries), but also for EU-15 as a whole (at -0.3%). By contrast, an increase in real wages, as a result of the population outflows, is seen in sending countries (only for those for which wages were modelled in NiGEM). As for the long-term impact on unemployment rate, Holland et al. (2011) estimated that it is very small (at maximum 0.1 percentage point), for inflow from EU-8 as for inflow from EU-2.

One caveat is that these results may suffer from an aggregation bias and results for specific skill groups, sectors, or occupations may differ significantly from the aggregated results (Kahanec, Zaiceva, and Zimmermann, 2009). D'Auria, Mc Morrow, and Pichelmann, 2008, and Brücker et al., 2009, also present disaggregated results that show that the employment effect for low-skilled workers would be larger than for the aggregate in EU-15 (negative) and in EU-8 (positive). However, in the long-run, most studies find that the employment effects are rather moderate, even for less-skilled workers (see also Baas, Brücker, and Hauptmann, 2009).

Finally, the caveat on the non-inclusion of postings, seasonal workers, and other short-term mobile workers (see GDP impact) also holds here.

### 5.3. Public finances and welfare system

There is a degree of public concern that the generosity or accessibility of the welfare state may influence migrants' decisions when choosing the country of destination. However,

Brücker et al., 2009, conclude that concern about welfare abuse by EU-8+2 immigrants is probably misplaced. The study found limited evidence with respect to the impact of immigration on the welfare systems. The higher dependency among immigrants on non-contributory allowances<sup>(38)</sup> can be explained by the characteristics of immigrants – mainly their education level, age, and number of children. After controlling for such characteristics, Barrett and Maitre, 2011, also find that rates of welfare receipts for EU-born migrants are about equal or less than for natives.

The overall impact of intra-EU mobility on public finances goes beyond the issue of welfare disbursement. In general, empirical studies estimate the net fiscal impact of immigration to be very small and slightly positive (Kerr and Kerr, 2011, and Rowthorn, 2008). This also seems to be the case for immigration from EU-8+2 to EU-15 (D'Auria, Mc Morrow, and Pichelmann, 2008).

In practice the net fiscal impact of an individual migrant depends on that person's age, education, and duration of stay. The extent of temporary migration in the flows from EU-8+2 to EU-15<sup>(39)</sup> would tend to have a positive fiscal effect in so far as migrants return home before being entitled to specific benefits. In a longer-term perspective, however, intra-EU mobility may put the public finances of EU-8+2 Member States under pressure in so far as large outflows of young citizens distort the population balance between those of working age and those no longer working (Kahanec, Zaiceva, and Zimmermann, 2009).

(38) Non-contributory allowances are social-insurance schemes for which entitlement is not linked to prior contributions; examples: housing and family allowances and transfers targeted to groups which are exposed to the risk of social exclusion.

(39) See Section 4, on characteristics of mobile workers in the EU.

### 5.4. Brain drain or brain gain?

The effect of outflows of high-skilled citizens on potential growth of the sending countries has sparked concerns. However, this traditional brain-drain assumption has been challenged by some theories and observations. The so-called 'brain-gain' assumption states that the possibility of future migration induces people to get more education (Gibson and McKenzie, 2011). Moreover, temporary and return migration, which is large in the flows from EU-8+2 to EU-15, may be seen as an investment in language and other new skills and in professional networks. These skills can be transferred back home on returning (Kahanec, Zaiceva, and Zimmermann, 2009).

Section 4, which addressed the characteristics of mobile workers in the EU, concluded that there was little evidence of a strong brain-drain effect in the migration from EU-8+2 to EU-15, since the share of high-skilled persons amongst mobile citizens is lower than the share in the origin countries' active population for EU-8. This is even more the case as far as EU-2 mobile citizens are concerned. Moreover, the outflow of skilled labour is somewhat compensated by an improvement of the education level among the EU-8+2 population, with EU-8+2 tertiary attainment rates for 30–34 year olds catching up with the rest of the EU (Table 21). The increase of tertiary attainment rates between 2004 and 2010 was faster than the EU-27 average in each EU-8+2 Member State, except Bulgaria. In the case of Estonia, Lithuania, Poland, and Slovenia, this attainment rate already exceeded the EU-27 average in 2010. Nevertheless, the absence of a general brain-drain effect does not preclude such effects in specific sectors, such as the medical profession in Poland, where regional problems are observed (Kaczmarczyk, 2010).

Table 21: Tertiary educational attainment, age group 30-34 years

	2004	2005	2006	2007	2008	2009	2010
EU-27	26.9	28.0	28.9	30.0	31.1	32.3	33.6
Bulgaria	25.2	24.9	25.3	26.0	27.1	27.9	27.7
Czech Republic	12.7	13.0	13.1	13.3	15.4	17.5	20.4
Estonia	27.4	30.6	32.5	33.3	34.1	35.9	40.0
Latvia	18.5	18.5	19.2	25.6	27.0	30.1	32.3
Lithuania	31.1	37.9	39.4	38.0	39.9	40.6	43.8
Hungary	18.5	17.9	19.0	20.1	22.4	23.9	25.7
Poland	20.4	22.7	24.7	27.0	29.7	32.8	35.3
Romania	10.3	11.4	12.4	13.9	16.0	16.8	18.1
Slovenia	25.1	24.6	28.1	31.0	30.9	31.6	34.8
Slovakia	12.9	14.3	14.4	14.8	15.8	17.6	22.1

Source: Eurostat, Europe 2020 indicators (t2020\_41)

Table 22: Remittance and compensation flows received by EU-8+2 Member States, in % of nominal GDP

Period	Origin	BG	CZ	EE	LV	LT	HU	PL	RO	SI	SK
99-03	world	4.5	0.5	0.2	1.2	0.5	0.5	0.8	0.3	1.0	0.3
04-07	world	5.4	0.8	1.9	2.1	2.6	1.7	2.2	3.9	0.7	1.8
08-10	world	3.2	0.6	1.7	2.2	3.5	1.7	1.8	3.4	0.6	2.0
04-07	EU-15	4.0	0.7	1.5	1.6	2.1	1.5	1.8	3.5	0.7	1.4
08-10	EU-15	2.1	0.5	1.4	1.7	2.8	1.4	1.5	2.9	0.6	1.6

Source: DG EMPL calculations based on Eurostat BoP and World Bank

## 5.5. Remittances

The section on the growth impact of intra-EU mobility referred to the cushion that remittances may offer to counter-balance to some extent the negative GDP impact for EU-8+2 Member States<sup>(40)</sup>. Remittances in a strict sense are defined as current private transfers to the country of origin from migrant workers resident in the host country for more than a year. In view of the large role of temporary migration in the flows from EU-8+2 to EU-15<sup>(41)</sup>, remittances in a strict sense are topped up by the balance-of-payments item "compensation of employees", which is the income of migrants who have lived in the host country for

less than a year (which includes border and seasonal workers). This follows World Bank practice in this respect (see for example, World Bank, 2011).

The detail of separate remittance and compensation flows will not be analysed, due to limited data availability (see also Eurostat, 2010<sup>(42)</sup>). Nevertheless, the large role of temporary migration is reflected in the large share of compensation in the aggregate flows of compensation and remittances. This share is very high for EU-8 Member States, at about 80 % in 2009, and even higher in the Member States with possibilities to commute to EU-15 (Poland, Czech Republic, Hungary, Slovenia).

For EU-2 Member States, the share of compensation is much smaller (Bulgaria: about 40%; Romania: less than 20%). These shares tend to overstate the weight of temporary migration (in number of migrants) as short-term migrants will send a larger part of

their earnings back home. Finally, it is important to note that these numbers do not account for unrecorded remittances sent home by migrants through informal channels, suggesting that the true size of the actual transfers is likely to be largely underestimated.

On average since 2004, remittance and compensation flows (from all countries) received by EU-8+2 Member States amounted to at least 1.7 % of nominal GDP (of which 1.5 % was received from the EU-15) (Table 22). The exceptions on the downside were the Czech Republic and Slovenia, in line with the limited population outflows from these Member States. On the upside, Bulgaria and Romania were the largest receivers of remittance and compensation flows in % of GDP.

Not surprisingly, the flows to EU-8+2 Member States of remittances and compensation from EU-15 Member States are closely correlated with the cumulated population outflows to the latter countries since 2004. The exception is Bulgaria where remittance and compensation flows are particularly high relative to population outflow.

For almost all EU-8+2 Member States, the average share of remittance and compensation flows in GDP in the period 2008-2010 was below the average of the three previous years. This is a result of reduced employment opportunities for migrant workers, who often work in cyclically-sensitive sectors (Dietz, 2009, see also Section 4.2, on the impact of the recession on intra-EU movers). Nevertheless, these flows continue to make a fairly stable and large flow of income in the migrants' country of origin.

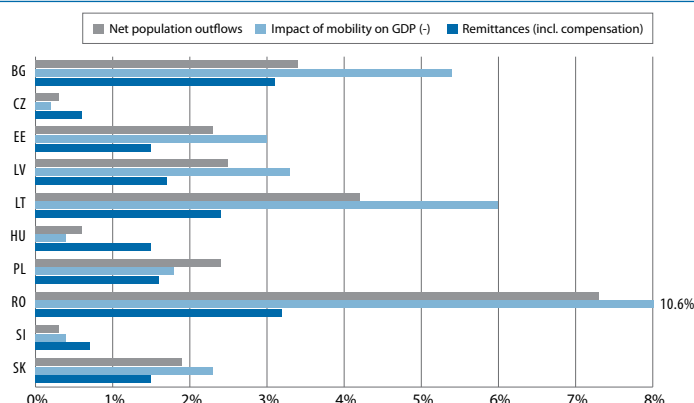
It should also be noted that, as the remittance and compensation flows are expressed in nominal terms, the sizeable exchange rate movements over recent years will also have played a role. For example, some of the recent drop in remittance outflows from the UK reflects the decline in the relative value of the pound sterling (Koehler et al., 2010).

(40) In Holland et al. (2011) the adjustment of the impact (of population outflows to the EU-15 on GDP) to take into account remittances has been done, but only for three countries (Poland, Czech Republic, and Hungary). In all cases, the originally negative impact on the GDP becomes positive after this adjustment (and the already positive impact on GDP per capita becomes larger). Furthermore, the authors point out that one would expect "an even greater positive impact on output in Bulgaria and Romania once remittances are taken into account, given the magnitude of remittances to these countries relative to the size of their GDP".

(41) And in view of the difficulties in assessing the length of stay of migrants in the host country.

(42) Eurostat started compilation of detailed data only in November 2009. Data are reported on a voluntary basis and are, therefore, still incomplete, especially for years prior to 2004. Remittances are very difficult to compile as they represent numerous, small transactions through a large variety of channels.

Chart 27: Population outflows, impact on GDP and remittances



Sources: DG EMPL calculations based on Eurostat BoP, World Bank, and Holland et al., 2011.

Note: Remittances: remittances plus compensation of employees, % of GDP, average '04-'10 (source: DG EMPL calculations based on Eurostat BoP and World Bank)

Impact of mobility on GDP: impact of intra-EU mobility '04-'09 as simulated through NIGEM, sign inverted, long-term effect, age adjusted (source: Holland et al., 2011)

Net outflows: outflows over '04-'09, in % of domestic population (source: Holland et al., 2011)

Table 23: Relative poverty rates of EU-27 foreigners in EU-15, 2009

	ARPR EU-27 foreigners	ARPR nationals	ARPR ratio	% EU-12 in EU-27 foreigners
Italy	20.4	16.4	1.24	86%
Greece	29.0	17.9	1.62	81%
Finland	18.7	13.9	1.35	58%
Ireland	11.5	13.7	0.84	57%
Spain	23.3	18.2	1.28	49%
United Kingdom	12.9	16.0	0.81	44%
Austria	19.6	10.4	1.88	43%
<b>EU-15</b>	<b>18.4</b>	<b>14.8</b>	<b>1.24</b>	<b>40%</b>
Denmark	19.1	13.2	1.45	35%
Germany	17.6	15.5	1.14	31%
Sweden	28.4	12.3	2.31	26%
Netherlands	9.0	9.5	0.95	25%
Belgium	18.1	12.1	1.50	12%
France	16.9	10.3	1.64	7%

Sources: DG EMPL calculations based on EU SILC

Note: ARPR = at-risk-of-poverty rate, i.e. the share of people with a disposable income (after social transfer) below the at-risk-of-poverty threshold. ARPR ratio is the ratio of the ARPR of the EU-27 foreigners and the nationals of the Member State. Portugal not included because of unreliable data.

% EU-12 = percentage share of EU-12 nationals in EU-27 foreign population, based on Table 4

When comparing population outflows, the size of remittances (including compensation) and the estimated impact of outflows on GDP (age-adjusted, see Section 5.1), a high correlation is observed between population outflows and the size of remittances (Chart 27). The correlation between the impact on GDP and the size of remittances is much lower, with an outsized impact on GDP for EU-2 and the Baltic states, which may be linked to the difficulties in modelling these quickly changing and/or small economies. For the Member States with the smallest outflows (the Czech Republic, Hungary, and Slovenia), the average size of remittances exceeds the impact on GDP.

In these comparisons, attention must be paid to the fact that these quantities are not fully comparable: remittances are expressed in percentage of nominal GDP and are an observed average over 2004-2010. The impact on GDP is the long-term impact in percentage points of real GDP of a model simulation of the intra-EU mobility flows as observed over 2004-2009.

## 5.6. Social situation of migrants

The analysis of the social situation of (EU-12) migrants in EU-15 is hampered by the scarcity of data (see also Euro-

found, 2010). Eurostat publishes data on income and living conditions (EU-SILC) according to citizenship, with a distinction between foreigners from inside and outside EU-27<sup>(43)</sup>. In the former, the specific subsample of foreigners from EU-12 is unfortunately too small to allow for reliable estimates.

Nevertheless, data for EU-27 foreigners resident in EU-15 can be used as an approximation of data for EU-12 migrants resident in EU-15, if at the same time the share of EU-12 in EU-27 foreigners is considered. In what follows, this approach is followed and the social situation is analysed with a focus on relative poverty rates for EU-27 foreigners.

In EU-15 Member States, the risk of having a disposable income (after social transfer) below the poverty threshold is 24% larger for EU-27 foreigners than for nationals (Table 23)<sup>(44)</sup>. For most of the EU-15 Member States with a large share of EU-12 foreigners, the gap between the two groups is even larger, especially in Austria where the at-risk-of-poverty rate of EU-27 foreigners is almost twice the rate for nationals. Two exceptions to this are Ireland and the United Kingdom, where the poverty risk is larger for nationals. For the EU-15 Member States with a smaller share of EU-12 foreigners, the EU-27 indicator is less relevant for the situation of EU-12 foreigners. Nevertheless, in all cases but one, the poverty risk is again clearly larger for EU-27 foreigners.

The results match with those of Section 4 which showed a relative high employment rate for EU-12 foreigners, but at the same time, an overrepresentation in low-skilled and, as a result, low-paid jobs.

(43) Unfortunately, EU-SILC does not provide information on how long the foreigner has been in the country.

(44) Chapter 3, Section 5.7, concluded that at comparable educational level, activity status, age, sex, and country of residence, an EU-migrant is 1.5 times as likely to face the risk of poverty or exclusion as a person born in the country of residence.

## 6. KEY FINDINGS

### *Recent East-West mobility flows have been substantial in absolute terms...but limited compared to overall population and migration flows from outside EU*

Before the two latest enlargements, the issue of free movement of workers was a subject of concerns, notably with regard to the impact of increased inflows of workers on the economic and social situation in both the receiving and sending countries. This chapter has described and analysed recent trends of intra-EU labour mobility, with a particular focus on the mobility of citizens from the new EU-10 Member States (which joined on 1 May 2004) and EU-2 (which joined on 1 January 2007).

In absolute terms the inflows from EU-12 countries to EU-15 countries have been considerable, about 3.6 million people over a relatively short period of time (2003-2010), representing a net annual growth of half a million, peaking at almost one million in 2007. However, those numbers are limited compared with the population sizes of both receiving and sending countries, and compared to migration flows of third-country nationals.

### *Outflows from EU-12 countries were affected by income differentials (and employment opportunities) and directed towards a limited number of receiving countries*

Flows from EU-12 countries were directed towards a limited number of countries: in 2010, around 85% of EU-10 movers were established in six EU-15 Member States, primarily the UK and Germany, followed by Ireland, Italy, Spain, and Austria, while three-quarters of EU-2 movers were in Italy and Spain (around one million each).

From the perspective of sending countries, the outflows (relative to the population of the countries) have been large, especially from countries having a relatively low level of income compared to the EU average (Romania, Lithuania, Latvia, and Bulgaria), which has clearly been an important push factor behind intra-EU mobility. Differences in respective employment opportunities have also played a role.

### *Decline of mobility due to the recession – but no massive return flows to home countries*

Intra-EU mobility seemed to follow the trends of the economy: while in the 2004-2007 period of strong economic growth EU-15 countries received high inflows from EU-12 countries, this trend changed radically with the economic recession. In 2009, the fall in labour demand generated a strong decline in the inflows especially in countries affected by the recession (Spain and Ireland) and also triggered some higher return outflows to the origin countries. There is, however, no evidence of a massive return migration to the countries of origin with a significant portion of the workers from the EU-8 and EU-2 having stayed in the destination countries.

Interestingly, the decline in intra-EU mobility during the crisis has been less pronounced for EU-2 than for EU-10 nationals. This is because the enlargement to the EU-2 countries took place more recently and is still impacting workers' mobility – but also because Bulgaria and Romania have been adversely affected by the recession and that the large gaps in GDP per capita with the EU-15 countries still constitute a strong pull-factor. However, as regards future migration from EU-2, there are indications that many of the EU-2 nationals who wanted to move have already done so and that demographic factors (shrinking young generation) will reduce the pool of potentially mobile workers.

### *The distribution of flows from EU-12 among EU-15 Member States resulted from economic and social factors, rather than from regulatory measures*

The transitional arrangements regime and the resulting diverse levels of openness of the labour markets of receiving countries have influenced the distribution of labour flows across the receiving countries – but only to a certain extent.

As far as EU-10 workers are concerned, there was an evident diversion of flows from Germany and Austria (which both kept restrictions until the end of the third phase of the transitional arrangements on 30 April 2011) to the UK and Ireland, which decided to open their labour markets from May 2004. However, the shift in the distribution was already ongoing prior to the 2004 enlargement, and can be explained to a large extent by differences in economic developments within the potential destination countries.

In the case of EU-2 countries, many workers had already settled in other EU Member States before the 2007 enlargement and the transitional arrangements do not seem to have significantly influenced the evolution of mobility flows since then, at least not in comparison to economic (and other destination-specific) factors. Member States having opened their labour market to EU-2 workers as early as 2007 have received very limited inflows. As for those having opened in 2009 (after the end of the first two-year phase), the inflows have either been limited or have decreased (compared to the previous years) at the moment when the restrictions were lifted – which can be partly explained by the economic recession. Meanwhile, the countries that continued to use transitional measures have received significant inflows since the accession – in the case of Italy no work permits have been required in several key sectors since 2007 which can explain the strong rise in mobility from EU-2 countries.



This seems to suggest that transitional measures have only a limited influence on the distribution of intra-EU mobility and that mobility flows are driven by other factors, such as labour demand, network effects through an existing foreign population, or language. Network effects seem for instance to have played a determinant role in the concentration of EU-2 nationals in Spain and Italy – and in the limited return mobility to the origin countries, despite the worsening of economic conditions.

***Recent movers from EU-12 are young and likely to be in employment...***

The analysis of the characteristics of recent movers from EU-12 showed that:

- they are on average younger than the overall population in both sending and receiving countries and have a higher rate of employment when they move abroad than in their origin countries;
- while EU-10 mobile citizens are significantly more likely to be in employment than the residents in the receiving EU-15 countries, the employment rate of EU-2 recent movers is lower, closer to the average in the main receiving countries;

***...they work in specific sectors (accounting for a small share of total employment) and are concentrated in low and medium skilled occupations...***

- at the sectoral level, recent EU-10 movers work primarily in manufacturing and trade while recent EU-2 movers' most popular sectors of activity are construction and domestic services, with 'accommodation and food service activities' being the third most frequent sector for both EU-10 and EU-2 movers. Even in those sectors, the share of recent movers from EU-12 in total employment in the receiving countries is limited;

- In 2010, employment of EU-10 and EU-2 recent movers was relatively concentrated in low- and medium-skilled occupations. While this reflects partly their overall skill profile, there is a significant number of workers experiencing a phenomenon of 'down-skilling' (around 30% of both EU-10 and EU-2 movers being employed below their qualifications).

***...but have been strongly affected by the economic crisis, in particular EU-2 nationals...***

EU-2 nationals constitute the group of citizenship that has been the most affected by the crisis, with a very high share of unemployment. This is mainly due to their concentration in Spain (the labour market the most affected by the recession) combined with their, on average, low educational attainment or predominance in sectors strongly impacted during the recession (construction). Interestingly, in the other main receiving countries, unemployment among EU-2 has remained moderate.

The large share of low-skilled among EU-12 movers (and especially among EU-2 movers) has not only made them vulnerable to job losses during the recession (in particular in Spain) but may also inhibit re-employment.

***An overall positive effect of mobility flows on the economies of receiving countries, despite some caveats***

All in all, EU-12 movers seem to have played a positive role in the economies of receiving countries, contributing to the skill mix, and working in sectors and occupations where job shortages needed to be filled.

A review of recent econometric studies has confirmed the overall positive effect of (post-accession) labour mobility flows on the economies of receiving countries. Existing research shows that the population flows from EU-12 since 2004 raised the long-term level of EU-15 potential

output with the largest boosts taking place in EU-15 Member States that received large inflows (in proportion to their population).

As far as the labour market of the receiving countries is concerned, most studies confirm the very small long-term impact of migration on real wages and unemployment. In general, they find only short-term evidence of a decline in real wages and increased unemployment in those Member States which have received large inflows. While there is also recent evidence of a negative (though limited) long-term effect on real wages for Spain and Italy (as a result of inflow of EU-2), as well as for Ireland (due to inflow from EU-8), there is no significant long-term effect expected on unemployment. However, research including disaggregated results show that the employment effects for low-skilled workers would be larger than the aggregate – though they would remain moderate. Another caveat is that the period on which these effects are estimated (2004-2009) was mostly characterised by economic growth, whereas the recession has made the labour market integration of mobile workers much more difficult.

***The presence of EU-12 movers plays a limited role in the current employment crisis***

However, it is clear that recent EU-12 movers played a very minor role in the labour market crisis of individual Member States. For instance in 2010 they represent only about 1.5 % of all unemployed persons in EU-15 countries. The effects of mobility from EU-12 seem limited for most receiving countries and existing evidence shows that intra-EU mobility has generally not led to serious labour market disturbances. The current labour market difficulties faced by a number of Member States are rather attributable to a variety of factors, notably the recession as well as structural labour market problems.

***Some risks for the sending countries – but overall no massive brain drain***

As far as the sending countries are concerned, the significant emigration from certain EU-12 countries of mostly younger workers has sparked concerns about brain drain. However, as the share of highly skilled workers among recent movers from EU-12 countries seems lower than in the origin countries' active population, there does not seem to be a strong brain-drain effect for these countries. This is especially the case for the EU-2 countries, which have lost significant shares of their active population, but mainly in the low (or medium) skill segment.

Moreover, enrolment rates for tertiary education in the EU-8 and EU-2 countries have substantially accelerated over the past years, which may begin to compensate for the outflow of skilled

labour. The absence of a broad brain-drain effect does, however, not preclude such effects in specific sectors or occupations, such as the health sector.

While recent studies find that the 2004-2009 outflows to the EU-15 had a strong negative impact on the GDP, especially in Bulgaria, Romania, and Lithuania, the impact expressed in GDP per capita is much lower. Moreover, the significant remittances sent back to the origin countries (especially in the case of EU-2 countries) can partially offset the negative growth impact in the short to medium term, though they cannot mend the longer-term problem of lower potential growth as a result of lower labour input.

***EU mobility can play a strong role in the EU employment recovery***

In conclusion, current available evidence does not seem to point

towards serious mobility-induced labour market disturbances. Post-enlargement mobility may have had some economic (or social) costs for the receiving and sending countries. However, it seems that those costs will not be reduced by restricting labour mobility but by addressing them through specific policies. Moreover, as the experience of the 2004 enlargement has shown, restricting the free movement of workers may have, in certain cases, some negative side-effects, such as an increase in undeclared work.

Finally, freedom of movement of workers is one of the fundamental freedoms of EU law. It makes a positive contribution to labour markets throughout Europe and as such represents a key element of the Europe 2020 Strategy. At the same time, it is a powerful and positive symbol of what Europe means for the individual EU citizen.



## ANNEX 1: EU DATA SOURCES AVAILABLE TO MEASURE INTRA-EU MOBILITY

Monitoring the evolution of intra-EU mobility of workers, notably in the context of the 2004 and 2007 enlargements, requires data about the number of EU citizens living in other Member States and its evolution over time. Two main EU sources of data have been used to this end: Eurostat migration statistics and the EU Labour force survey. In this chapter, EU mobile citizens are defined according to their citizenship and not their country of birth (preferable when dealing with migration) since restrictions on free movement under transitional arrangements are linked to citizenship and not country of birth. Therefore the assessment of the two EU sources is focussed on the citizenship variable and not on the country of birth. The analysis presented below shows the pros and cons of each source and the difficulty to have a reliable and harmonised measurement of the evolution of the number of 'EU foreigners' living in each of 27 EU Member States. This is partly explained by the very success of the free movement of citizens and workers which, by definition, implies that EU citizens are less and less required to register, request a residence or work permit, etc.

### Eurostat migration statistics:

The EU and its Member States have made great efforts recently to improve the quality and comparability of the migration data at EU level. In 2007, a Regulation<sup>(45)</sup> has been adopted to set the frame under

which EU Member States should collect and publish migration statistics, in particular the population stock (of foreigners 'usually resident' in the country) and flows, disaggregated either by citizenship or country of birth. The adoption and implementation of this regulation has led to a substantial improvement of data availability. However, there remain important gaps, especially when measuring the extent of intra-EU mobility. While data on third-country-nationals are broken down by groups of citizenship (EFTA, candidate and other non-EU countries but also groups according to the level of development), there is no obligation for the Member States to break down the 'EU foreigners' by individual (or group of) citizenship. A number of Member States go beyond the minimum requirements and publish data broken down by individual citizenship for EU foreigners. However, this is not the case in all Member States (or for all years). Several countries (including France and the UK) only publish the total number of 'EU foreigners', not broken down by individual citizenship.

Another limitation, in a labour market perspective, is that the only variables available are, for each declaring country and citizenship (or group of citizenship), the age group and the gender. There is no information on the duration of residence, the employment status, or the education level. Moreover, the population data are fairly complete when dealing with all age classes taken together but for the specific working-age population (15-64), less data about 'EU foreigners' is available. Finally, the fact that the regulation of migration statistics has been implemented recently implies some breaks in the series before 2009 (or that the data is simply not available before 2009).

Two other limitations of Eurostat migration statistics can be mentioned here: firstly the fact that they are mostly based on administrative registers may lead to underestimation because some

foreigners may not register out of fear, lack of discipline or motivation; secondly, that the registration may occur with a delay, therefore possibly involving a bias in any dynamic analysis of these data.

A last remark concerns the use that is made of the Eurostat migration statistics in this chapter: using the stock of foreigners to draw comparison over time (i.e. calculate net migration from other countries) can be misleading since the evolution of the stock does not reflect only inflows and outflows but also the natural evolution (births and deaths) of foreigners living in the country. For instance, according to the EU LFS (described below), around 13% of the EU-10 and EU-2 nationals living in the EU-15 are individuals aged less than 15 and interestingly around half of them were born in their current country of residence.

Beyond the data on population stock by citizenship, Eurostat migration statistics also contain data on the inflows and outflows of foreigners, including EU foreigners (broken down or not by citizenship, depending on the declaring country). However, analysis of this data, notably by Holland et al. (2011), seems to indicate that, at least in the case of EU-10 and EU-2 foreigners living in EU-15 countries, the availability and comparability (to the population stock data) of the flow data is limited. For instance, the difference between in- and outflows for a certain year almost never match the evolution of the population stock (far beyond the differences that could be explained by natural evolution of the stock of foreigners). The difference could be partly explained by the fact that Member States are obliged to follow the 'usual residence concept' for migration flows but not when compiling population stock data. Moreover, the quality of data on outflows may be limited by the fact that foreigners leaving a country might not de-register from their former residence administration. For this chapter, the population

(45) Regulation (EC) No 862/2007 of the European Parliament and of the Council of 11 July 2007 on Community statistics on migration and international protection and repealing Council Regulation (EEC) No 311/76 on the compilation of statistics on foreign workers, OJ L 199, 31 July 2007, p. 23.

stocks by citizenship have been considered as a more complete and reliable source than the flows and are therefore used as one of the two main data sources. Flow data is used only in exceptional cases, in order to catch recent trends, notably in the case of Spain and Italy.

## EU Labour force survey (LFS):

The EU LFS aims primarily to measure unemployment and labour market participation, but it collects also other information on the resident population, in particular nationality, which can be used to produce estimates of the number of EU citizens residing in another Member State. EU LFS data can therefore be used to complete the missing data in the Eurostat population stocks by citizenship (for countries such as France and the UK for instance) but also to obtain more information about the characteristics of EU mobile citizens such as: age and gender, employment situation (status, sector, occupation), and education level. However, using the EU LFS in order to estimate the number and characteristics of resident foreigners and in particular of 'EU foreigners' can suffer limitations, described in *Employment in Europe, 2008* (Chapters 2 and 3). The main limitations are the following:

- replying to the survey is not compulsory in most Member States and the non-response rates among foreigners are very high, due notably to language issues;
- in many Member States, there is a delay in entering the reference sample frame and very recently arrived foreigners may not be covered well. Generally, the EU LFS only covers persons who have stayed or intend to stay for one year or more and therefore short-term mobile workers (i.e. seasonal workers or posted workers) are not covered;
- a comparison with Eurostat migration statistics shows that the LFS-estimated stocks of EU-10 and EU-2 foreigners living in EU-15 countries are constantly lower than the migration statistics (with the exception of Ireland). However, Marti and Rodenas (2007) undertook a review of the sampling procedures for the LFS in several EU countries and showed that the LFS approach is more likely to capture foreigners in some countries than others: Austria, Belgium, France, Luxembourg, Sweden, and the UK;
- the small sample size in many countries reduces the possible use of the data broken down by citizenship (or group of citizenships), in particular when too many variables are crossed to analyse this population.

Despite the limitations quoted above, the EU LFS has several advantages which make it a very valuable source to use in this chapter:

- for some countries (such as France, the UK) it is simply the only source providing data on the stock of EU foreigners broken down by citizenship;
- the LFS data are available on a quarterly basis and published around four months after the data collection and it is therefore possible to identify recent trends while population statistics are published on an annual basis a bit more than one year after the reference period;
- one variable in the Labour force survey provides information about how long the foreigners have been living in the country. It therefore enables an estimate of the inflows that occurred over a certain time and helps to distinguish the recent intra-EU movers (i.e. the EU-10 and EU-2 citizens that have arrived since the 2004/2007 enlargements) from the 'EU foreigners' that have been in the country for a longer time.
- while the use of LFS data might under-estimate the absolute number of EU movers, it is likely to give a reasonable indication of the way flows have changed over time.

## ANNEX 2: ECONOMETRIC BACKGROUND TO HOLLAND ET AL., 2011

To assess the macro-economic impact of population movements, Holland et al., 2011, adopted a series of model simulation exercises, using the National Institute Global Econometric Model (NiGEM). NiGEM is a global model, in which the economies of EU Member States (with the exception of LU, CY, and MT) are modelled individually. All country models contain the determinants of domestic demand, export and import volumes, prices, current accounts, and net assets. Economies are linked through trade, competitiveness and financial markets and the models are solved simultaneously.

The core parts of the model relevant to the mobility simulation are the *labour market* and the *production function* in each economy. *Labour*

*markets* are described by a *wage equation* and a *labour demand equation*. Wages depend on productivity and unemployment, and have a degree of rational expectations embedded in them – that is to say the wage bargain is assumed to depend partly on expected future inflation and partly on current inflation. The speed of the wage adjustment is estimated for each country. Wages adjust to bring labour demand in line with labour supply.

*Employment* depends on real wages, output, and trend productivity. Labour supply is treated as exogenous to factors other than population projections. Inward migration raises the population, which feeds directly into labour supply. *Production functions* have a constant elasticity of substitution, with labour and capital as factor inputs, estimated rates of labour-augmenting technical progress, and an elasticity of substitution of around a half.

Inward migration raises potential labour supply, and therefore raises potential output through the production function.

In order to assess the macro-economic impact of population shifts between the EU-8/EU-2 and the EU-15 since 2004, Holland et al., 2011, run two NiGEM model simulations, adjusting the level of the population in each country over the period 2004-2009 by the observed population shifts. In this baseline scenario, it is assumed that the cumulative population shift between 2004-2009 is permanent. After applying these exogenous “shocks” to the population in each country, the model is allowed to run, to determine the impact that this change has on the major macro-economic indicators in each country.

Further detail on NiGEM is provided at <http://nimodel.niesr.ac.uk/logon/economics/NiGEM%20Overview.pdf>

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The economic, financial and sovereign debt crises and subsequent austerity measures underline the need for a more integrated approach to employment and social policy. This review merges two previous European Commission reports on these areas. It begins with an overview of the current European employment and social situation before looking at recent shifts in Europe's job structure and in income inequality. The report then examines patterns of poverty and social exclusion in Europe and the phenomenon of in-work poverty. Issues of active ageing, intra-EU labour mobility and the impact of enlargement are also covered.

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